

Israel Nanotechnology Survey 2005

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Definitions and Methodology

Nanotechnology is the creation of materials, devices, and systems through the manipulation of individual atoms and molecules. Nanoscale devices range from approximately 1-100 nanometers (one billionth of a meter). d&a has categorized the Nanotechnology field according to several fields of research including:

- Materials (particles, solid materials, structures)
- Tools (optical and electrical test and measurement)
- Biotechnology (disease treatment, genomics, proteomics & glycomics, reagents, drug delivery, biochips & sensors)
- Electronics and Photonics (components, MEMS, lithography & inspection, quantum computing, quantum dots)
- Filtration & Membranes (desalination, water purification)

By definition, the survey includes only researchers and companies that operate in Nanotechnology research and development. No companies that use solutions of Nanotechnology, or sub products were included. It was agreed upon with the heads of the Nanotechnology research centers in the universities that the participants in the survey are occupied in Nanotechnology research.

This report is based on two types of questionnaires that were sent to universities and companies (see Appendix B and C). These questionnaires were created in joint cooperation between d&a's research team and INNI and were approved by the INNI. The INNI attached a cover letter signed by Dan Maydan, chairman of the INNI (see Appendix A). The d&a research team conducted the survey according to the following 3 phases:

1. Sending e-mails with the INNI cover letter and questionnaires to 253 researchers in Israeli Universities (Bar Ilan, Ben- Gurion, Hebrew University, Technion, Tel- Aviv University, Weizmann Institute) and to 34 companies that have R&D team developing products in

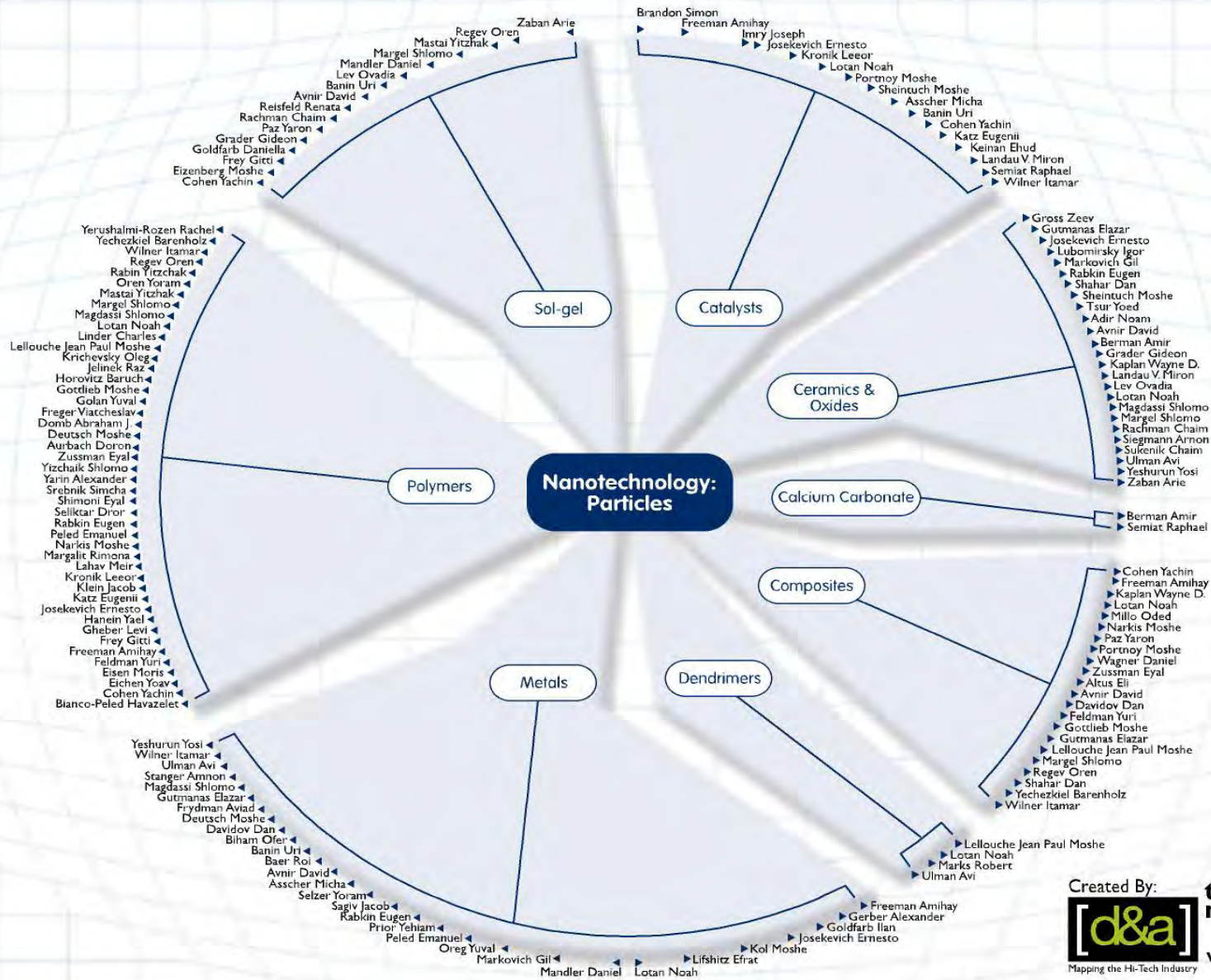
Nanotechnology. We also sent a reminder e-mail 2 weeks after sending the first round.

2. Follow up phone calls with most of the university researchers and companies to verify the information.
3. Meetings and phone conversations with heads of Nanotechnology centers at the universities and with leading companies in the field.

At the end of this process, we accumulated responses (filled surveys) from 98 researchers and 18 companies. Most of the missing information had been completed by phone interviews with the academy and industry, and were based on the information gathered over the years in d&a's database. As a benchmark, d&a reviewed the USISTF report from 2001, but no real use of the information was actually made.

According to the survey results d&a's research team created 8 tech - knowledge maps™. The maps enable their viewers to visually comprehend the array of players in a specific technology field. The maps serve as a one-of-a-kind tool for enhancing deal making and business development in each sector.

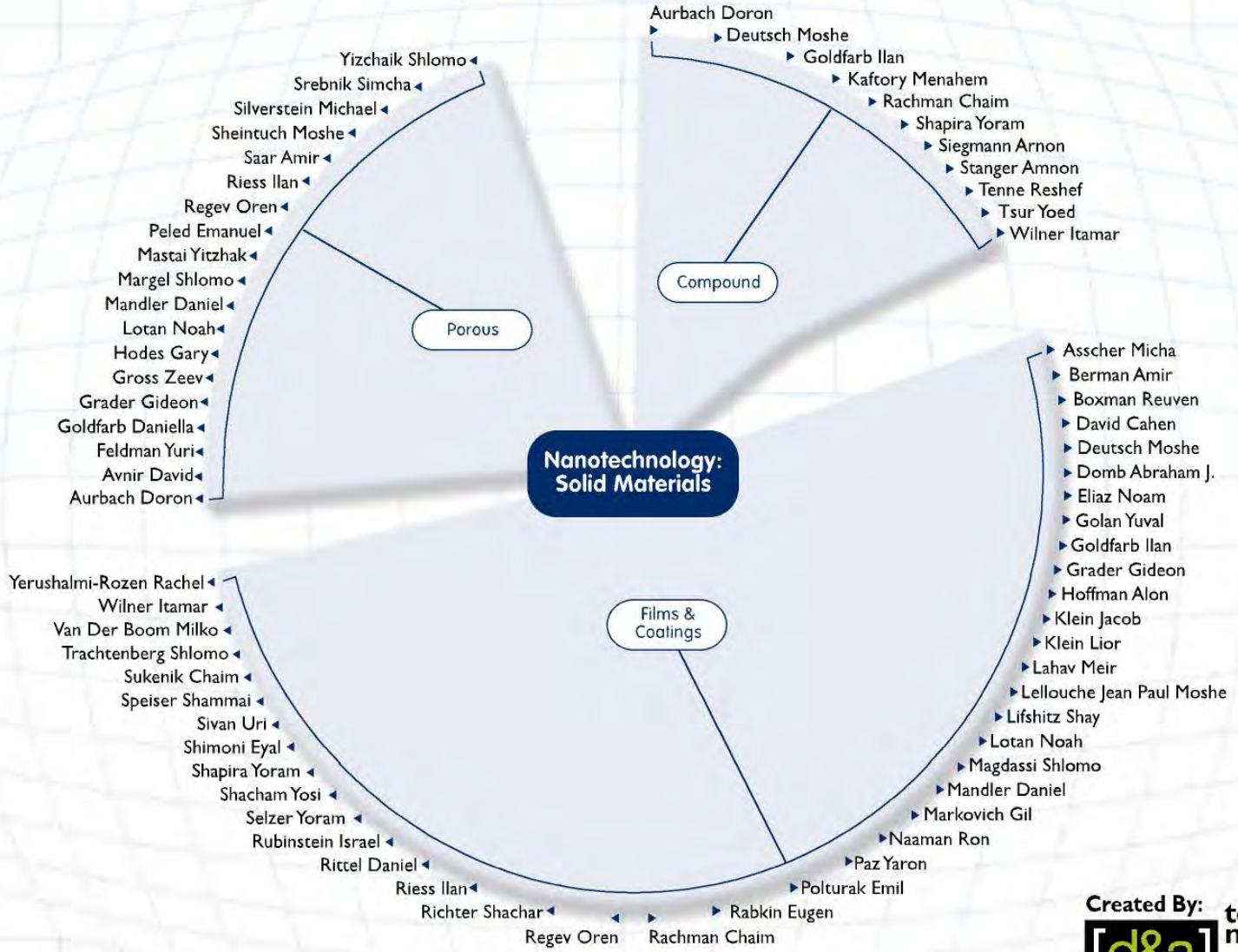
Section 1: Nanotechnology Research - Israeli Universities

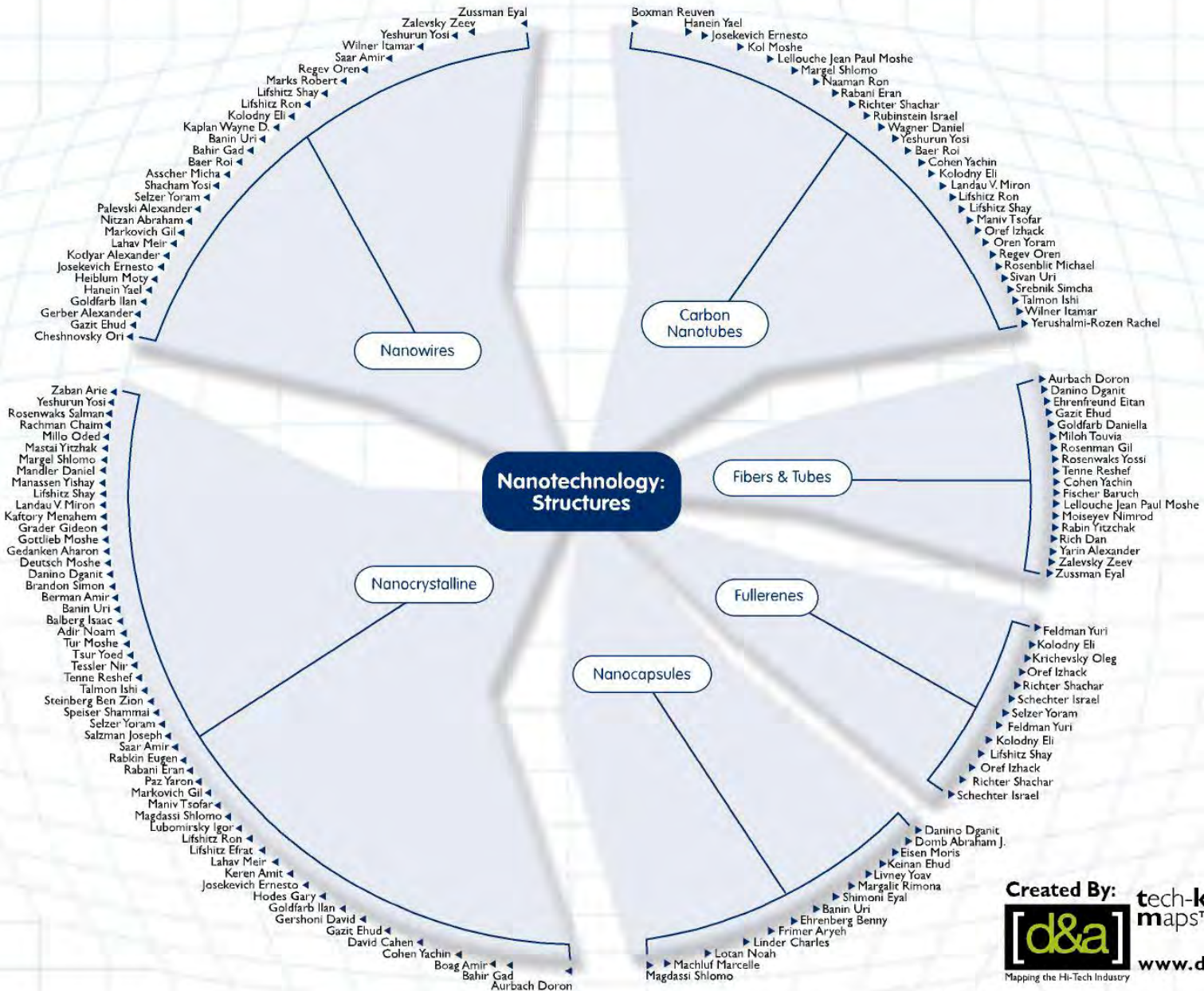


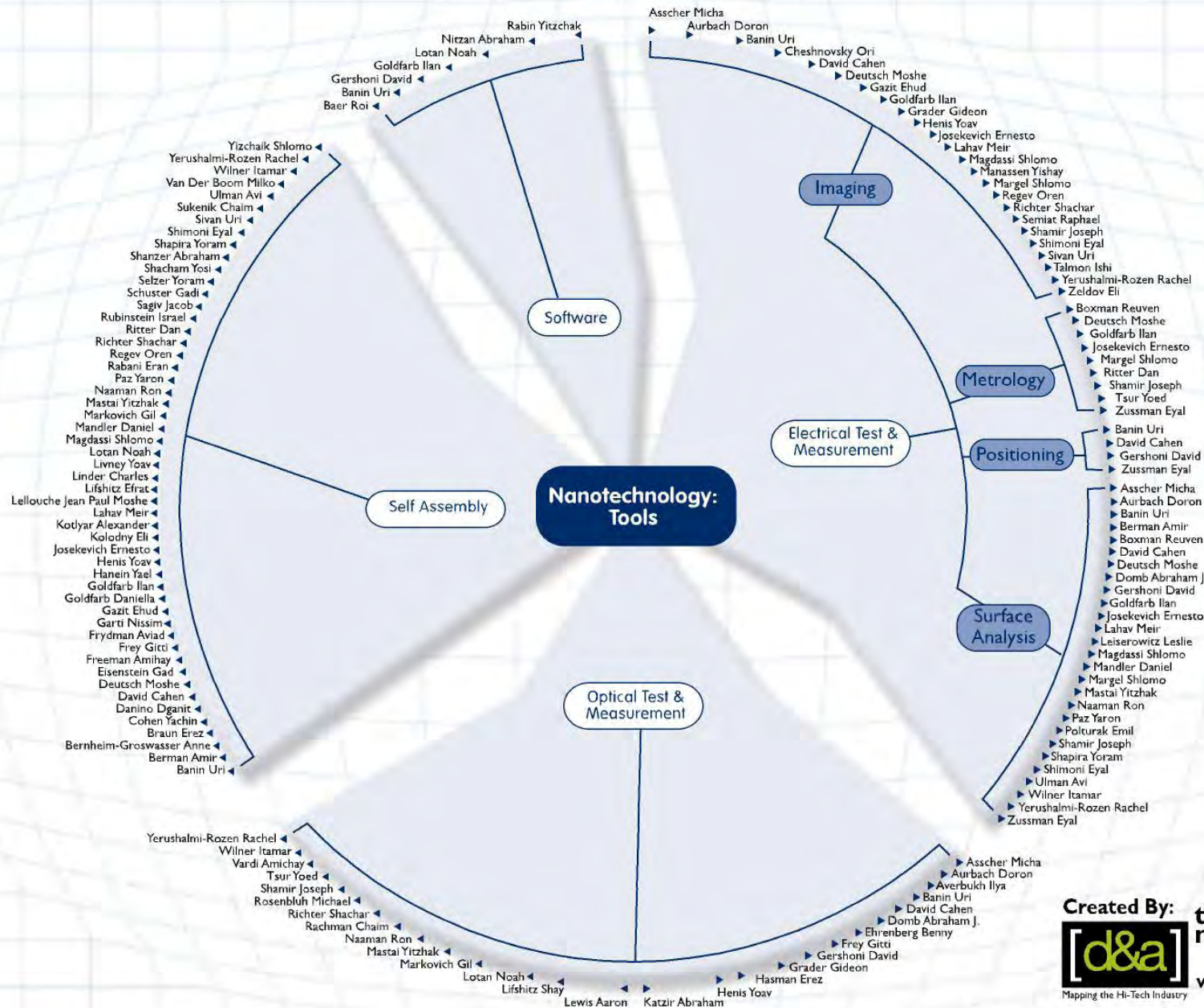
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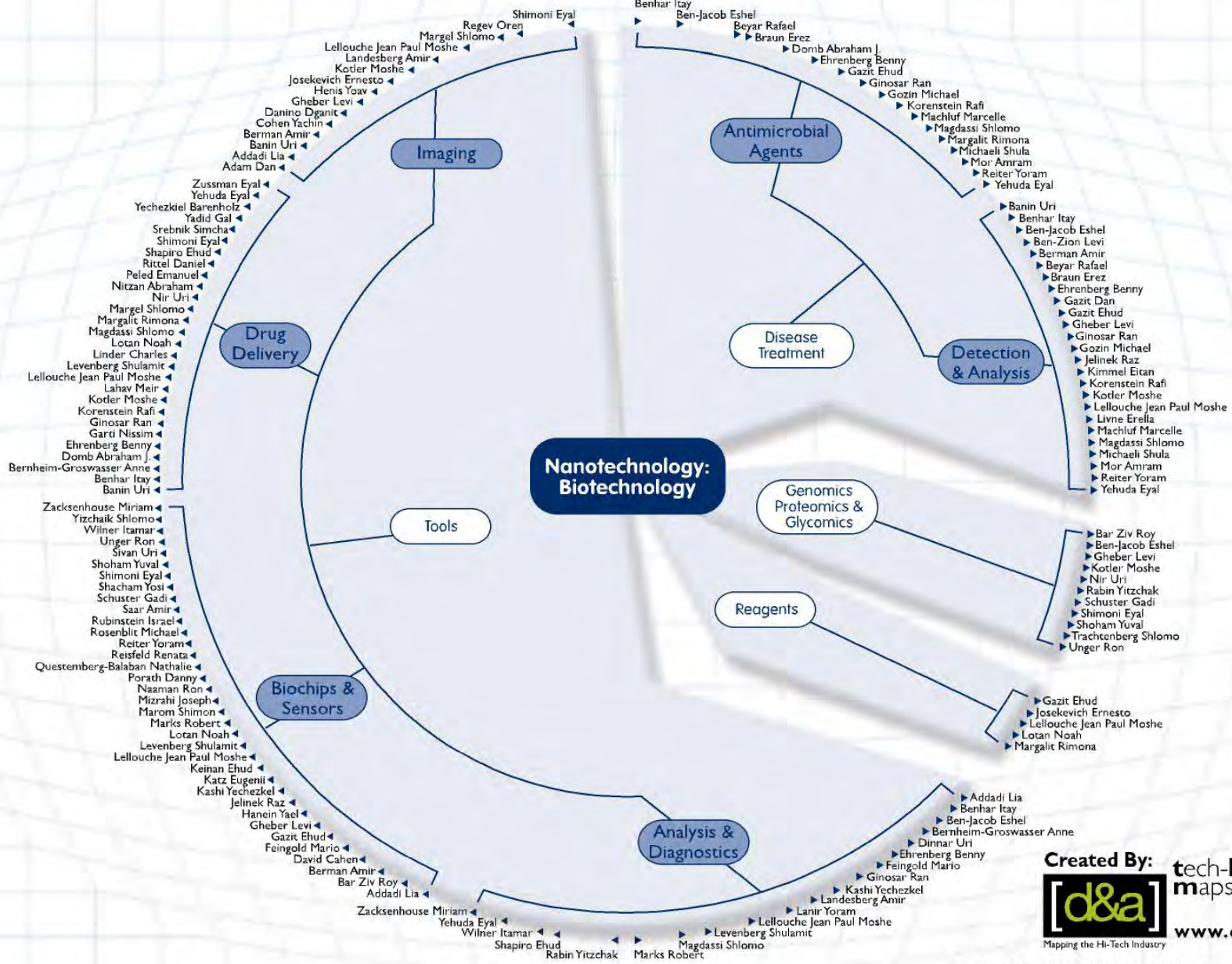
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Nanotechnology: Solid Materials

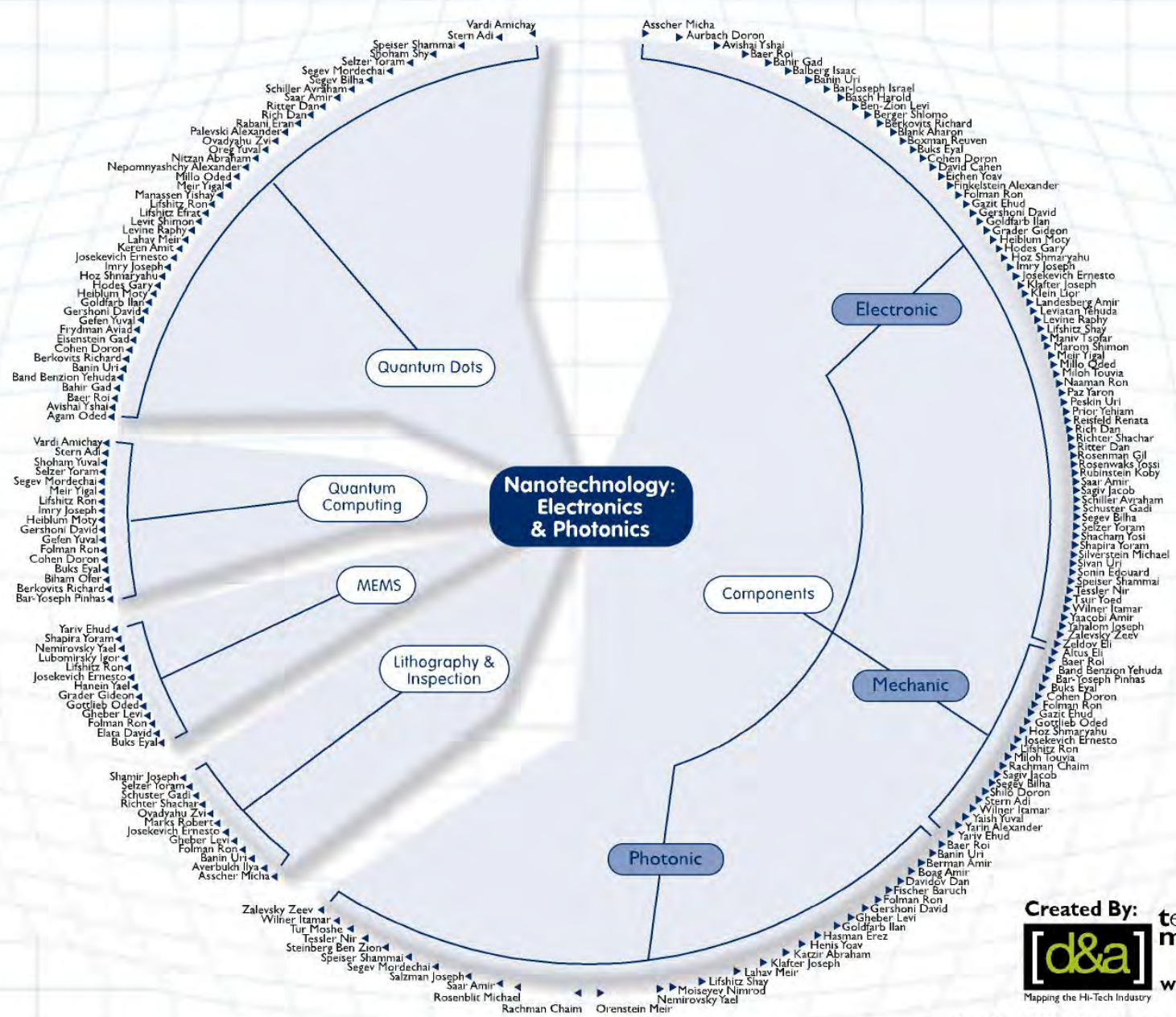




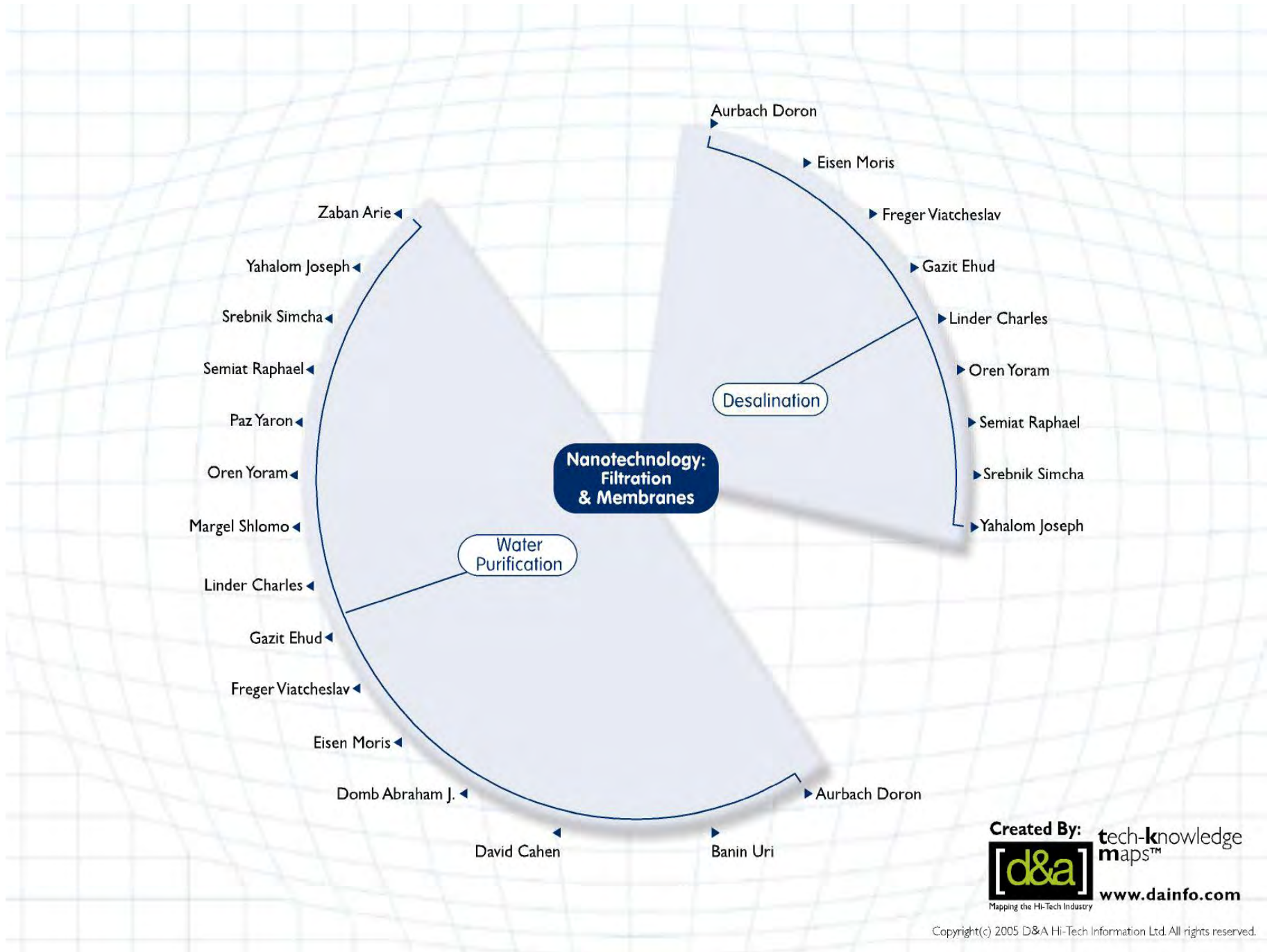




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1.1 Bar-Ilan University

Researcher Name	Faculty	Research Area ¹	Funding ²	Team ³
Aurbach Doron	Chemistry	Both basic research in materials, surface and electrochemical science and applied research related to energy storage & conversion, development of batteries, super capacitors and carbon membranes. The batteries market, energy storage, water purification.	4 projects less than \$500,000	30
Basch Harold	Chemistry	Molecular devices, Electronics.	In House and Grants	3
Berkovits Richard	Physics	Basic science.	ISF, Minerva- 1 project less than \$500,000	6
Deutsch Moshe	Physics		Israel Science Foundation, German-Israeli Science Foundation (GIF), U.S.-Israel Binational Science Foundation	5-10
Ehrenberg Benny	Physics	Nanomodels of cells' membranes, liposomes, drug encapsulation and delivery. Clinical diagnosis and treatment.	Granting agencies and endowed chair	6
Frimer Aryeh	Chemistry	Pharmaceuticals. Intercalation of compounds into the phospholipid bilayer of liposomes and biomembranes; Active oxygen Chemistry; determination of depth and location of intercallants within bilayer.	Research grants - 1 Project less than \$500,000	5
Frydman Aviad	Chemistry	Magnetic devices for storage media and magnetic sensors.	Israel Science Foundation	5 graduate students

¹ Research Area - According to answers provided by the researchers to the questions about fields of activity, basic research or application research (technology) and target markets.

² Academic Funding - Any source of funding within and outside the university for projects dealing with Nanoscience.

³ Team - Number of researchers in the program including Ph.D., Post-docs M.Sc., graduate and B.Sc. students.

Researcher Name	Faculty	Research Area	Funding	Team
Gedanken Aharon	Chemistry	Possible applications include: 1) The synthesis of the smallest ever reported silicon carbide, 2) Antibacterial Nanoparticles that can be applied to antibacterial hospital bedding and aprons 3) Solar cell materials such as CuInSe ₂ and CuInTe ₂ in nanometric sizes, 4) Encapsulating drugs in antibodies.	EU, Israeli Ministry of Industry and Trade, Israeli Ministry of Science. F.E.T- 50,000 Euro	1 senior scientist, 7 post-docs, 15 graduate students
Hoz Shmaryahu	Chemistry	Our work is creating the "materials strength and properties" handbook for the nano-engineer making molecular and supramolecular devices.	Israel Science Foundation, Israeli Ministry of Defense	2 graduate students
Klein Lior	Physics	Spintronics - basic research and application of spin polarized transport in magnetic films (single layers and multilayers). Magnetic memory including magnetic random access memory (MRAM) and magnetic sensors for a variety of applications (electronics, biological sensors, etc.).	ISF, BSF, Intel Israel- 1 project less than \$500,000	5 (4 Ph.D. students and 1 M.Sc. Student)
Lellouche Jean Paul Moshe	Chemistry	Biomedical diagnostic. Pharmaceutical companies, POC testing, DNA profiling/testing.	External funding (research organizations)- 3 projects \$500,000-\$1,000,000	10
Margel Shlomo	Chemistry	Biotechnology and Industrial.	NFM (magnet), BSF, Ministry of Science, Industry, NIH, BMBF, etc. 4 projects less than \$500,000	15
Mastai Yitzhak	Chemistry	Antifreezing materials for biological applications, chiral resolution of drugs. Chiral separation antifreezing protein, biotechnology pharmaceutical industry.	GIF Young Scientist Awards, Alon Fellowship, Israel Academy for Higher Education, Pollak Foundation scholarship- 1 project less than \$500,000	8
Michaeli Shula	Biology			
Nir Uri	Biology	Cure of various types of cancer and genetic diseases. Targeted delivery of molecular tools (like siRNAs) for the specific knock-down of diseases linked genes, delivery of drugs, for the specific eradication of diseased cells.	By a grant from the ministry of Health - 1 project less than \$500,000	4

Researcher Name	Faculty	Research Area	Funding	Team
Rabin Yitzchak	Physics	Basic research on the effect of elasticity and thermal fluctuations on nano-filaments; DNA translocation through nanopores. General understanding of mechanical and thermal behavior of long flexible filaments of nanometric thickness.	ISF- 1 project less than \$500,000	3
Rosenbluh Michael	Physics	Electro-optics. Glasses that contain metal or semiconductor clusters are sensitive to subsequent processing by laser light. We have used these glasses for "writing" micron size lenses and lens arrays, two and three dimensional gratings, and other special structures. The use of these materials in integrated optics applications, optical waveguide formation, photonic band-gap materials and spectroscopy are explored.	INTAS, BMBF (Germany), Israeli Ministry of Defense - \$100,000.	2 senior scientists (+ 1 visitor), 3 graduate students
Sukenik Chaim	Chemistry	Thin film coatings for biomedical devices and for nanoparticle encapsulation. Medical implants, nanoparticle-based dispersions.	Research grants from standard academic funding agencies - 1 project less than \$500,000	15
Ulman Avi	Chemistry	Pharmaceutical, specialty materials, water treatment.	Startup	10
Unger Ron	Biology			
Weiss Aryeh	Engineering			
Yadid Gal	Biology			
Yeshurun Yosi	Physics	Magnetic properties of nano-materials. "Tailoring" the magnetic characteristics by varying particle size. Magnetic materials are used in numerous applications.	1 project less than \$500,000	5
Zaban Arie	Chemistry	Solar energy, water purification.	ISF, Israeli government offices and EU; 1 project \$1,000,000 - \$5,000,000	12
Zalevsky Zeev	Engineering	All-optical processing, in-fiber devices, photonic crystals, Si nano wires. Consumer market - replacing the personal computers with faster/smaller devices.	Internal grant - 1 Project less than \$500,000	2

1.2 Ben-Gurion University

Researcher Name	Faculty	Research Area	Funding	Team
Avishai Yshai	Physics	This topic is mainly related to quantum micro-electronics. Quantum electronics.	ISF (3 years x \$35,000 starting October 2003). DIP (5 years starting January 2004)	4 senior researchers and 5 students
Band Benzion Yehuda	Chemistry	Optics, opto-electronics, electronic and atomic devices.	1. U.S.-Israel Binational Science Foundation 2. Deutsch-Israelische Projektkooperation 3. Israel Science Foundation Center of Excellence Grant	2 research associates, 3 Ph.D. and M.Sc. students
Berman Amir	Biotechnology Engineering	1. PDA films are conjugated polymers that are candidated for various molecular electronics applications. 2. The PDA organic template is versatile and can be used to direct ordered nucleation of nanoparticles and, in the same time connect them physically and electronically into an array. 3. PDA chromatic response is the basis for chromatic biosensors. We explore the possibility of specific recognition of DNA oligomers, thus enabling their detection by chromatic or electronic response.	2000 – The Ilse Katz Center for Nanoscale Science and Technology. \$30,000 for one year 2001- Israel Science Foundation Center of Excellence 2002- Seed support, BGU, 20,000 NIS 2003- Natural Sciences Faculty grant for novel interdisciplinary research, BGU. \$15,000 2003-Harry Stern Foundation for Applied Research, BGU. \$20,000 2003- Seed support, BGU. 20,000 NIS 2004 Intel Capital. \$20,000	8
Bernheim-Groswasser Anne	Chemical Engineering	Nanoscopic motor machines.	ICA (Israel Cancer Association). Internal Grant - Ben-Gurion University	2 students
Cohen Doron	Physics		ISF - \$105,000 shared by two BGU Pis. GIF - 120000 Euro for the Israeli PI. 86000 for the German PIs	In BGU - 4 students. In MPI Gottingen - my GIF collaborators + shared Postdoc + Ph.D. student

Researcher Name	Faculty	Research Area	Funding	Team
Feingold Mario	Physics		Single Molecule Studies of Double Stranded DNA Melting Using Optical Tweezers, ISF, 2000-2003	1 M.Sc. student and 1 undergraduate
Folman Ron	Physics	Ultra cold atomic clocks, acceleration sensors, gravitational sensors, quantum computing, quantum sensors (magnetic, gravitation, acceleration), clocks, quantum communication, quantum computation.	2004-2008 - FP6 'atomchip' training network, 250,000 Euro 2004-2008 - DIP German-Israeli 'cold atom & molecule chip' project, 650,000 Euro 2004-2008 - Israel Science Foundation 'Matter-Wave Center-of-Excellence', 100,000 Euro 2004-2008 - Horovitz foundation 'quantum optics', 1,000,000 Euro	20
Freger Viatcheslav	Environmental Engineering		1. GIF (Young Scientists' Program), 1 year (2002-2003), 36,000 Euro 2. Ministry of Science – Strategic Research Program (Infrastructure), 3 years (2002-2005) 150,000 NIS/year, total 450,000 NIS 3. Negev Development Authority+ Ministry of Absorption, 1 year (2003-2004) 150,000 NIS 4. Seed-money grant 2002 from BGU, based on ISF proposal (2001), NIS 20,000 5. BGU Internal research grant 2003, based on ISF proposal (2002), NIS 33,000	4
Gheber Levi	Biotechnology Engineering	Biochips, bioelectronics, lab-on-a-chip, biosensors, tissue engineering.	ISF, BSF, MOS, EU	2 Post-doctorates, 2 Ph.D. students, 1 M.Sc. student, 2 research assistants

Researcher Name	Faculty	Research Area	Funding	Team
Golan Yuval	Materials Engineering	We are developing technologies for preparing organized, electrically connected nanomaterials and exploring their physical and structural properties. Interest in these projects has been expressed by, e.g., Intel Kiryat-Gat (Fab-18) who had provided funding for one of our projects.	Israel Science Foundation (ISF): (1999-2002) including equipment grant. CI: Prof. J. Salzman, the Technion US-Israel Binational Science Foundation (BSF) - (two grants: 1999-2002 ; 2003-2007) both with Prof. J. Israelachvili, UC Santa Barbara Intel, Israel - 2004, Co-PI: Dr. A. Berman. Vatat - 2004-2007, Co-PIs: Dr. Michal Arbel-Haddad, Dr. Eyal Sabatani Partner and executive committee member in European 6th Framework "SEMINANO" project, approved for funding. Coordinator: Prof. R. Turan, Ankara, Turkey	5 research students, 3 undergraduate students
Gottlieb Moshe	Chemical Engineering		1. 2000-2004, Reimund Stadler Minerva Center for mesoscale macromolecular engineering - \$533,000 2. 2001-2004, United States - Israel Binational Science Foundation (BSF) - \$54,000 3. 2001- 2005, GIF –\$77,000	5
Horovitz Baruch	Physics		German Ministry of Science grant on "Quantum electronics in low dimensional systems", including 12 Israeli and German investigators, (1998-2003) Israel Science Foundation grant on "Disorder induced phase transitions: Layered superconductors and quantum Hall systems" (2000-2003) Israel Science Foundation grant on "Coherence in disordered normal and superconducting systems" (2003) German Ministry of Science grant on "Quantum control of Fermion atoms and Molecules on Atom Chips" including 9 Israeli and German principal investigators (2004-)	5

Researcher Name	Faculty	Research Area	Funding	Team
Jelinek Raz	Chemistry	Assays for rapid screening of pharmaceutical compounds. Kits for pathogen detection.	2003 DPharm Inc. – R. Jelinek (PI), \$35,000 2003 Faculty of Natural Sciences, Ben Gurion University – co-PIs, \$15,000 2002 Institute for Security Research, Technion, \$25,000 2002 - 2006 - US-Israel Binational Science Foundation [BSF] Grant, \$50,000/pa (total grant: \$200,000) 2002 – 2004 - “Pharmalogica” MAGNET industry-academy consortium, 1st year: \$75,000, 2nd year: \$175,000, 3rd year: \$125,000 Total grant: \$375,000 2001 – 2004 - Israel Science Foundation Grant, \$60,000/pa (total grant \$180,000) 2000 – 2001 - Harry Stern Foundation for Applied Research \$48,000	10 researchers - 2 post-docs, 5 Ph.D. students, 3 M.Sc. students.
Krichevsky Oleg	Physics	Biotechnology.	ISF New lab equipment grant (2001) - \$250,000 ISF personal grant (2001-2004) - ~ \$150,000 GIF Young researcher grant (2003) - 35,000 Euro	1 Research associate, 2 Ph.D. students, 2 M.Sc. students, 2 B.Sc. students.

Researcher Name	Faculty	Research Area	Funding	Team
Landau V. Miron	Chemical Engineering	Developing novel nanoscopic catalytic materials for petroleum refining, fine chemistry and environment protection.	<ol style="list-style-type: none"> 1. Blechner Foundation \$2,000,000 2. Israeli Oil Refineries Ltd \$70,000 3. Israel Science Foundation, Center of Excellence \$240,000 4. BGU Internal research Foundation \$10,000 5. Israeli Oil Refineries \$55,000 6. ExxonMobil R&D Co., USA \$240,000 7. Teva Ltd \$35,000 8. Teva Ltd \$116,000 9. Israeli Oil Refineries \$30,000 10. Machtshim-Agan Ltd \$40,000 11. Israeli Ministry of Trade and Industry \$100,000 12. Israeli Ministry of Education \$60,000 	16
Linder Charles	Chemistry	Sea and Brackish water desalination, municipal wastewater treatment, energy conversion devices for hydrogen fuel cells and direct methanol fuel cells, targeted controlled drug delivery for the treatment of neurological disorders, high dielectric thin films for capacitors.	Water Related Projects: Tashtiot- Funded by Israeli Government ~ \$100,000+/yr Ordered Membrane Project: Funded by A Negev Development Grant \$30,000 Nano-vesicles for Targeted Controlled Drug Delivery - funded by BG Negev Biotechnology Grant Average \$150,000/year	Project 1) Water treatment and desalination: Charles Linder, Yoram Oren, V. Freger, Project; 2) Biotechnology: Drug Delivery and treatment of neurological diseases Charles Linder Project; 3) Microencapsulation of natural products as novel pesticides: Charles Linder

Researcher Name	Faculty	Research Area	Funding	Team
Manassen Yishay	Physics	Project 1: Single spin detection with the STM: Basic research Project 2: Dual Probe STM: Basic Research Project 3: Elastic properties of matter on the nm scale Basic Research	GIF: Chemical reactions on heterogenous surfaces (2000-2004) Vatat: Corrosion on the nm scale (1998-2005) Bikura: Dual tip STM based on the mechanically controllable break junction for measuring surfaces in momentum space. (2002-2004) Each grant is about \$25,000 annually	Project 1: three Project 2: one Project 3: three
Marks Robert	Applied Biosciences	EU, IST, MOST	<ol style="list-style-type: none"> 1. 2000-2001 - NATO Science Program. \$8,800 2. 2001 - Office of Naval Research International Field office \$16,000 3. 2001-2003 – EC 5th Framework Program Energy, Environment and sustainable Development Program Photo-Electro-Bio-Catalytic treatment of drinking water (PEBCAT) 305,520 Euro 4. 2001-2002 - MERI/CIMIC (USA) Genotoxicity monitoring of Meadowlands environmental samples using a bioluminescent optical biosensor \$80,000 5. 2003-2006 - EC 5th Framework Program Biomimetic optical sensors for environment endocrine disruptor screening (MENDOS) 229,200 Euro 6. 2002-2004 – NIOSH/CDC Guidelines for the development and evaluation of Direct Reading Instruments for Biological Organisms. (\$142,200) travel costs 7. 2000-2004 - Israel Science Foundation Biochemical nanophotolithography \$130,000 8. 2001-2004 - Israel Ministry of Science and the Arts \$90,000 9. 2002-2004 - Israel Ministry of Defense (Mafat) \$85,000 10. 2002-2004 - Arc-en-ciel/Keshet travel award. Israel Ministry of Science and the Arts and the Ministère des Affaires Étrangères 	15

			11. 2003 - Israel Ministry of Science and British Council	
Meir Yigal	Physics	Single electron transistor. Quantum computing.	1. 1998-2002, United States - Israel Binational Science Foundation (BSF) - \$60,000 2. 2000-2003, DIP - \$296,000 3. 2003-2006, Horovitz Foundation - ~ \$1,930,000 4. ISF, HFSP	5
Oren Yoram	Biotechnology Engineering	Sea and Brackish water desalination. Municipal and industrial waste water treatment. Treatment of drinking water sources. Energy conversion devices for hydrogen fuel cells and direct methanol fuel cells. Water desalination and water treatment.	"Optimization of Membrane Processes" MOST Tashtiot ~ \$250,000/yr (In collaboration with Rabin Lab. At the Technion and Mekorot) "Ordered Membrane for Electrodialysis" Ministry of Absorption and Negev Development Authority \$30,000 "Improvements in Electrodialysis" Israel Water Commission \$30,000/year "Desalination Program", Donations made to the Institute for Water Sciences and Technologies at BGU ~ \$150,000 "Desalination Pilot", Donation made by the Blaustein Family, \$425,000	9
Regev Oren	Chemical Engineering	Enhancement of electrical and mechanical properties of polymer composites, biosensors. Dispersion of nanotubes. Conductivity enhancement of polymers using nanotube Conductivity control of liquid crystal via nanotube Templated synthesis of nanowires and nanotubes Dispersion and stability of nanotubes/nanowires in aqueous solution.	1. IDF \$25,000 2. ISF - Center for Excellence \$1,200,000	3

Researcher Name	Faculty	Research Area	Funding	Team
Rich Dan	Physics	Near infrared detectors and quantum dot lasers, blue-green lasers and light emitting diodes.	"Carrier Relaxation Dynamics and Optical Properties of III-V Quantum Nanostructures Studied with Multi-Functional Near-Field Optical and Cathodoluminescence Imaging Techniques, " Period: 10/1/2002 to 10/1/2005, Total Amount: \$183,000	1 Ph.D. student, 2 M.Sc students
Rosenblit Michael	Physics			
Rosenwaks Salman	Physics	The pulsed laser deposition and the characterization methods developed in our laboratory can be extended to a variety of materials.		12
Segev Bilha	Chemistry		1999- 2000 - BSF, American Israeli Binational Science Foundation 2000-2001 - ISF, Israel Science Foundation. 2001- 2003 - BSF 2001-2002 - Israel Ministry of Defense Research and Technology Unit 2002-2005, ISF, Israel Science Foundation	1 Post-Doctorate student, 1 Ph.D. student, 4 M.Sc. students.
Vardi Amichay	Chemistry	Information Technology, Precision Measurements.	Minerva Junior Research Group (781,539 Euro endowment, 5 years) BSF (\$60,000, 2 years) ISF Excellence Center (effectively \$12,000, 3 years) DIP	1 Graduate student, 1 Post doctorate
Yerushalmi-Rozen Rachel	Chemical Engineering	Polymers and carbon nanotubes are highly applicable in the field of advanced materials.	1. Israel Science Foundation, FIRST ("Bikura"), 2000-2001- \$55,000 2. "Mafat", the Israel Ministry of Defense, 2001-2004 - R. Yerushalmi- Rozen 400,000 NIS 3. 2001-2004, United States - Israel Binational Science Foundation (BSF) grant no.200124, 2001- \$37,000 2002 – \$35,000 2003 – \$35,000 4. 2001- 2005, Israel Science Foundation, R. Y-R: 2001- \$60,000; 2002 -\$60,000; 2003 - \$58,000;	5

1.3 Hebrew University

Researcher Name	Faculty	Research Area	Funding	Team
Agam Oded	Physics	Structures, Quantum Dots.		
Asscher Micha	Chemistry	Basic Research and Applications. Biosensors and lithography market.	Research Foundations - 2 projects less than \$500,000	4
Avnir David	Chemistry	Catalysis, sensing, biotechnology, drug delivery, optical properties, improved materials, thin films.	MOS, GIF, ISF, AFIRST, MAGNET, total funds ~\$200,000 per year	1 post-doc, 8 Ph.D. students, 1 M.Sc. student
Baer Roi	Chemistry		ISF, GIF-2 projects less than \$500,000	6
Balberg Isaac	Physics	Light emission devices, solar cells, electronic switches.	ISF, and HU sources: \$75,000 per year	2 Ph.D. scientists, 1 Ph.D. student, 3 M.Sc. students
Banin Uri	Chemistry	Electronics, electrooptics, imaging and biological imaging.	ISF, DIP, BSF, MOS - 4 projects less than \$500,000	12
Biham Ofer	Physics	Quantum computation.		
Davidov Dan	Physics	Photonic crystals; medicine.	VW foundation, the Israeli Academy of Science & Science Ministry- \$100,000	
Domb Abraham J.	Medicine	Pharmaceuticals. Biodegradable polymers, polymeric complexes, nanodispersions, coating of implantable devices, regional drug therapy, protein delivery systems.	ISF, BSF, support from the following companies: Polygene, Elutex, NST-total funds ~\$200,000 per year	4
Feldman Yuri	Physics	Light emission devices, fluorescent taggents, optical gain devices, electro-optics, nano-optics, electrical devices, energy - solar cells, sensors.	ISF, Northern Saxony Grant, MAGNET project, HU and Industrial grants; total ~\$600,000	2 Ph.D. scientists, 1 Post-Doc, 3 Ph.D. students, 4 M.Sc. students
Garti Nissim	Chemistry	Drug delivery and improved solubilization.	BSF, BARD- 1 project less than \$500,000	12

Researcher Name	Faculty	Research Area	Funding	Team
Gazit Dan	Medicine	A novel approach of Skeletal Tissue Engineering (Bone, cartilage and ligament). Nano-based scaffolds for ex vivo skeletal tissue engineering. Nano-based matrix replacements for bone and cartilage implants, combined with Engineered Adult Mesenchymal Stem Cells. Nano Based gene delivery combining DNA complexation with nano-molecules.	200,000	
Katz Eugenii	Chemistry			
Kotler Moshe	Medicine		\$200,000	
Lev Ovadia	Chemistry		\$3,000,000	
Levine Raphy	Chemistry	Molecular electronics.		
Lewis Aaron	Physics	Nanochemistry, localized Raman spectroscopy, novel scanning probe techniques.	ISF, Israel Ministry of Science (2)	
Magdassi Shlomo	Chemistry	Printing and coatings, cosmetics, pharmaceuticals, agriculture, microelectronics, film retardants, polymers.	Government and industrial companies - 4 projects less than \$5,000,000	10
Mandler Daniel	Chemistry	We are involved in a few projects of nano technology: 1. Local deposition of nanostructures using a scanning electrochemical microscope 2. Electrodeposition of sol-gel thin films for sensing, catalysis and other applications 3. Structuring the solid-liquid interface by self-assembled monolayers. Smart coatings, sensing applications, corrosion prevention, etc.	ISF, DIP, GIF, Niedersachsen-Israel Foundation, Ring Foundation. - 4 projects less than \$500,000	5

Researcher Name	Faculty	Research Area	Funding	Team
Millo Oded	Physics	Single electron transistors, solar cells.	ISF, DIP, BSF, University Internal grants -\$160,000 per year	3 Ph.D. students, 3 M.Sc. students
Ovadyahu Zvi	Physics		\$100,000	
Porath Danny	Physical Chemistry	Molecular electronics. DNA-based nanoelectronics: investigation of the electrical properties of DNA, G4-DNA, M-DNA and PC-DNA by scanning tunneling microscopy and spectroscopy (STM/STS) and by direct electrical transport measurements. Defects detection in DNA using its spectral and electrical properties for biological applications.	\$100,000	
Questemberg-Balaban Nathalie	Physics	Microfluidic integrated systems; biological sensors.	ISF, Complexity total funds - \$100,000 per year	1 Ph.D. scientist, 1 Ph.D. student, 1 technician
Reisfeld Renata	Chemistry			
Saar Amir	Physics	Light emission devices, silicon lasers, photonic crystals, tunable filters, biosensors for neural activity sensing.	Ministry of Science, Israel-China bi-national, MAGNET project, Magneton project- \$200,000	1 Post-Doc, 4 Ph.D. students, 6 M.Sc. students, Lab. eng.
Schiller Avraham	Physics	The Kondo effect in ultra-small quantum dots: We concentrate on nonequilibrium aspects of the Kondo effect, such as the effects of a finite bias and time-dependent fields. Among the questions studied are shot noise in the Kondo regime, the measurement of the Kondo resonance at finite bias, and the basic time scales for the development of the Kondo effect. The charging of a quantum box: Possibilities for observing the two-channel Kondo effect in the charging line shape of semiconductor quantum boxes are investigated, focusing	ISF Center of Excellence grant - \$41,000 per year	1 Ph.D. student, 1 M.Sc. Student.

		<p>on resonant tunnelling as means to enhance this exotic effect. The ability to manipulate individual atoms on metallic surfaces has opened exciting new possibilities for measuring the local electronic structure near individual adatoms. Following some recent experiments, we study the local electronic structure near isolated magnetic adatoms, as well as in artificial nanostructures such as quantum mirages. Phase measurements in Aharonov-Bohm interferometers: The conditions under which Aharonov-Bohm interferometers can be used to measure the intrinsic transmission phase of a quantum dot are investigated.</p>		
Sonin Edouard	Physics	<p>In addition to various potential applications of ultrasmall Josephson junctions for quantum electronics and information, they can be used as sensitive noise detectors. Basic understanding of electron transport.</p>	ISF- \$50,000 per year	2
Trachtenberg Shlomo	Medicine	<p>Linear, contractile bacterial motors driving free swimming spiroplasmas and controlling their dynamichelical geometry. The molecular structure and dynamics of bacterial rotary propellers. Helical and non-helical perturbations of molecular assemblies as a means of controlling the rigidity of bacterial propellers. The molecular structure and function of bacterial propellers at extreme conditions of temperature, pH and ionic strength. Extracting high resolution information from flexible helical assemblies as a means of understanding the molecular switches involved in the dynamics and</p>		

		polymorphism of bacterial propellers. Developing methods for studying flow over highly convoluted and complex surfaces at supramolecular dimensions.		
Wilner Itamar	Chemistry	Assembly of layered molecular crosslinked metal nanoparticles on surfaces: preparation, characterization and sensoric applications. Optical, photonic and photoelectrochemical properties of molecularly-wired semiconductor nanoparticles. Integration of metal or semiconductor nanoparticles with nucleic acids for sensoric applications. Electronic, photonic and photoelectrochemical properties of DNA/semiconductor nanoparticle hybrid systems assembled on surfaces. Investigation of metal nanoparticles and carbon nanotubes, electrical contacting of redox-proteins with electrodes. Application of metal nanoparticles and carbon nanotubes as nanometer-size conductors and nano-electrodes. DNA, polypeptides and polysaccharides as templates for metallic and semiconductor nanoparticle-based circuitry. Layered biomaterial architectures on surfaces for bioelectronic and biosensor applications. Photoactive molecular assemblies on electrodes as molecular switching, information storage devices and molecular machinery. Probing of molecular recognition processes by chemical force microscopy. Molecular-, macromolecular- and biomolecular-functionalized micro-elements for micromachinery and mechanical sensing.	DIP, ISF, GIF, Nofar, PCCT and industrial support. Total funding - <\$250,000 p.a.	20 researchers including post-docs, Ph.D.& M.Sc. students and research staff

Researcher Name	Faculty	Research Area	Funding	Team
Yechezkiel Barenholz	Medicine	Pharmaceutical market		10
Yizchaik Shlomo	Chemistry	Molecular Layer Epitaxy growth of quantum confined structures including single quantum well, heterojunctions and superlattices. Molecular electronic devices: single electron transistor (SET), nano-organic light emitting diodes (nOLED) and high electron-mobility organic ansistors (HEMOT). Synthesis and characterization of 2D conducting polymers on various template surfaces assembled by the use of oxidative enzymes. Molecular tuning of inorganic-semiconductor's electronic properties by self-assembled organic monoand multi-layers. (with Prof. M. Ratner, Northwestern U.) Optical and electronic properties changes in porous silicon induced by various surface modifications (with Prof. A. Saar, Hebrew U). Molecular transduction layer in electronic sensing of cells (with Prof. M. Spira and Prof. J. Shappir, Hebrew U.)	ISF, EU (x2), MOS -\$170,000 per year	3 Ph.D. scientists, 3 Ph.D. students, 2 M.Sc. students

1.4 Technion – Israel Institute of Technology

Researcher Name	Faculty	Research Area	Funding	Team
Adam Dan	Biomedical Engineering	Biomedical Engineering - Optimal dispersion relations for enhanced electromagnetic/acoustic power deposition in biological dissipative slabs, cell therapeutic strategies by nano-scale streaming and pressure stimulations.		
Adir Noam	Chemistry	The relationship between the three-dimensional structures of proteins and their function, using X-ray crystallography, bio-mimetics.		
Altus Eli	Mechanical Engineering	Stochastically heterogeneous materials in nanotechnology.		
Bahir Gad	Electrical Engineering	Quantum dots based devices: memories, lasers, detectors.	2 projects less than \$500,000	3
Bar-Yoseph Pinhas	Mechanical Engineering	Computational nano-mechanics.		
Ben-Zion Levi	Food, Engineering & Biotechnology			
Berger Shlomo	Materials Engineering	Materials Engineering Dielectric properties of nanometer-sized particles.		
Beyar Rafael	Medicine	Application of nanotechnology to cardiac stents.		
Bianco-Peled Havazelet	Chemical Engineering	Nano-structured polymers for biomedical applications.		
Blank Aharon	Chemistry	Single spin spectroscopic detection and nano-meter scale imaging of paramagnetic defects in semiconductors.		
Brandon Simon	Chemical Engineering	Brownian dynamics and Monte Carlo simulations of protein crystals.		
Braun Erez	Physics	Finding new concepts & tools for harnessing molecular biology for the self-assembly of molecular scale electronics.		
Buks Eyal	Electrical Engineering	Basic research - MEMS.	1 project - \$500,000 - \$1,000,000	7
Chagit Denekamp	Chemistry	Organic Mass Spectrometry.		

Researcher Name	Faculty	Research Area	Funding	Team
Cohen Yachin	Chemical Engineering	Design and fabrication of functional nanocomposites exhibiting enhanced properties such as: mechanical (ballistic), catalytic, antimicrobial, energy storage, using carbon nanotubes and other nanoparticles in polymeric systems, in particular nanofibers.	Israel Science Foundation, Ministry of Industry and Trade, - 2 projects less than \$500,000	7
Danino Dganit	Chemical Engineering	Biotechnology & Food Engineering - Cryo-TEM, relations between protein structure & function.		
Dinnar Uri	Biomedical Engineering	Biological flows in microchannels.		
Ehrenfreund Eitan	Physics	Lasers, & high spatial resolution optics, for conducting low light level spectroscopy & sub picosecond time resolved spectroscopy.		
Eichen Yoav	Chemistry	Preparation & characterization of junctions & networks of oligonucleotide-conjugated polymer & polypeptide-conjugate polymer hybrids, applicable in nanoelectronics.		
Eisen Moris	Chemistry	Synthesis of nanomembranes for the wastewater treatment, elastomeric polymers encapsulating nanoparticles.		
Eisenstein Gad	Electrical Engineering		1 project less than \$500,000	
Eizenberg Moshe	Materials Engineering	Silicon technology at the nanoscale.		
Elata David	Mechanical Engineering	MEMS, tensile test systems.		
Etsion Izhak	Mechanical Engineering	Mechanical Engineering - Friction wear & lubrication on the nanoscale.	ISF, Science ministry - 2 projects less than \$500,000	4
Fischer Baruch	Electrical Engineering	Nano optical structures, nano via ultra-short light pulses (femto-sec and atto-sec).	\$500,000	
Frey Gitti	Materials Engineering	Materials Engineering - Design, synthesis & characterization of novel conjugated polymer/inorganic nanocomposites & their integration into electronic devices. Coassembly of organic & inorganic precursors with molecular level control over interface, structure, & morphology. Target Markets- Electronics and Optoelectronics.	Research funds	4 students, 1 eng, 1 group leader

Researcher Name	Faculty	Research Area	Funding	Team
Gershoni David	Physics	Studying optical & electronic properties of quantum wells, wires & quantum dots. Use of short-pulse lasers, & high spatial resolution optics, for conducting low light level spectroscopy & sub picosecond time resolved spectroscopy. This research may affect future technologies such as spintronics and quantum information processing.	Scientific funds like BSF, GIF, ISF, and MOST.- 2 projects less than \$500,000	8 (6 graduate students, laboratory engineer and myself)
Ginosar Ran	Electrical Engineering	Neuroelectronic VLSI systems: Chips that interact with neurons, both for brain research using large neuronal network in the lab & for computer-controlled brain implants that help the treatment of neural diseases.		
Gottlieb Oded	Mechanical Engineering	Dynamics of the Atomic Force Microscope tip, nanoresonators.		
Grader Gideon	Chemical Engineering	Sol-gel processing of ceramic nano-materials: xerogels and aerogels, nanosized catalysts, ceramic foams, nanostructured PZT films, coatings.	Founding of project in accumulative sum of 5 million Dollars	
Gross Zeev	Chemistry	New molecules that bind to semi-conducting nanoporous metal oxide, construction of dye-sensitized-solar-cells.		
Gutmanas Elazar	Materials Engineering			
Hasman Erez	Mechanical Engineering	Space-variant polarization-state manipulation with computer-generated sub-wavelength gratings.	Internal	
Hoffman Alon	Chemistry	Growth of nanodiamond films, examination by HRSEM, HRTEM, SPM, NEXAFS, & electron spectroscopy.	\$3,000,000	
Kaftory Menahem	Chemistry	Supramolecular chemistry, nano-magnets, quantum tunneling of magnetization, organic-based magnets.		
Kaplan Wayne D.	Materials Engineering	Local strain fields in nanosized crystals & their use in optimizing nanocomposites, processing of ceramic matrix nanocomposites, processing of extremely long (600m) nano-wires, development of computer algorithms & code for HRTEM based atomistic structure retrieval & local strain in nanomaterials, development & application of FEG-TEM based spectroscopy & microscopy for nanocharacterization.		

Researcher Name	Faculty	Research Area	Funding	Team
Kashi Yechezkel	Food, Engineering & Biotechnology	Biotechnology & Food Engineering - optic fiber microarray for rapid bacterial identification and typing.	1 project less than \$500,000	
Keinan Ehud	Chemistry	Biomolecular computing devices that are based on DNA and on synthetic compounds, molecular rotary motors. Molecular machines, molecular computing machines. Encryption of information and images, electronic and optoelectronic devices.	BSF, DIP, Technion funds, ISF.- 4 projects less than \$500,000	12
Keren Amit	Physics	Magnetic quantum tunneling in molecular magnets.		
Kimmel Eitan	Biomedical Engineering	Motion of nano particles and intracellular organelles for the investigation of local viscoelastic properties of cells and mechanotransduction under load.		
Kolodny Eli	Chemistry	Deposition of fullerenes, carbon nanotubes & self-assembled molecular wires on a substrate. The study of substrate-carbonmaterialelectron transport. Potential use in nanoelectronics & electron microscopy. Using a new ion beam-mass spectrometry to study & optimize processes for the intact emission of large biomolecules adsorbed in an orderly manner on surfaces. Aiming to obtain two-dimensional molecular mapping of the surface with high spatial resolution.		
Landesberg Amir	Biomedical Engineering	Biophysics of the muscle molecular motor, biological control of sub-cellular nano-systems for therapeutic modalities.		
Lanir Yoram	Biomedical Engineering	Forced and spontaneous nano-motion of the cytoskeleton as a probe for intra-cellular rheology and remodeling.		
Levenberg Shulamit	Biomedical Engineering	Nano and micro-manipulations of embryonic stem cell differentiation and 3D organization, nanodesign of biopolymers for tissue engineering.		
Leviatan Yehuda	Electrical Engineering			

Researcher Name	Faculty	Research Area	Funding	Team
Lifshitz Efrat	Chemistry	Synthesis & optical characterization of unique semiconductor nanocrystals (quantum dots): core-shell structures, quantum-dots quantum wells, single dots & self assembly Magneto-optical spectroscopy: optically detected magnetic resonance (ODMR), optically detected cyclotron resonance (ODCR), microwave modulated photoluminescence (MMPL), photoinduced microwave absorption (PIMA), circular polarized photoluminescence (CR-PL).	\$3,000,000	
Lifshitz Shay	Materials Engineering	Materials Engineering - Nanostructuring of silicon and semiconducting nanowires by thermal CVD, energetic particle deposition.		
Livne Erella	Medicine	Scaffolding for tissue engineering and regeneration		
Livney Yoav	Biotechnology & Food Engineering	Nanocapsular vehicles for programmed release of bioactive compounds using self-assembling biopolymers.		
Lotan Noah	Biomedical Engineering	Sub-micron size particulate materials, for use in biomedical/biotechnological areas such as enzyme carriers, controlled release of bioactive molecules & tissue engineering.	Basic Research: Nanotopography using Molecular Engineering Technology. Applied Research: Nanoparticles for Drug Delivery and Tissue Engineering. Localized therapy, Controlled Drug Delivery, Tissue Engineering for artificial organs	4
Machluf Marcelle	Biotechnology & Food Engineering	Controlled delivery systems for brain cancer therapy.		
Maniv Tsofar	Chemistry	Quantum & geometric effects of inorganic nanotubes & orbit motion effects in semiconductor nanocrystals.		
Marom Shimon	Medicine			
Mizrahi Joseph	Biomedical Engineering	Tissue engineering for articular cartilage.		

Researcher Name	Faculty	Research Area	Funding	Team
Moiseyev Nimrod	Chemistry	Plasmonics for nano-photonics.		
Mor Amram	Biotechnology & Food Engineering	Design, synthesis and characterization of antimicrobial peptide-like copolymers.		
Narkis Moshe	Chemical Engineering	Preparation & characterization of polymer composites with nano-clay particles, research focus on the preparation & characterization of stiffness, impact resistance, heat distortion, water disorption, gas permeability & flame retardance.		
Nemirovsky Yael	Electrical Engineering	MEMS.	\$3,000,000	
Nepomnyashchy Alexander	Mathematics	Modeling development of quantum dots.		
Novick-Cohen Amy	Mathematics	Grain boundaries and surface evolution.		
Oref Izhack	Chemistry	Theoretical considerations of the physico-chemical properties of doped fullerenes & carbon nanotubes.		
Orenstein Meir	Electrical Engineering	Nano plasmonic circuitry, quantum information processing, optical nano cavities and sources. Nano photonics-applied physics.	\$300,000	
Paz Yaron	Chemical Engineering	Water treatment, III-V device manufacturers.	2 projects less than \$500,000	5
Peskin Uri	Chemistry	Electron transmission through single molecules & supra-molecular assemblies, combined experimental & theoretical investigation.	1 project - \$500,000 - \$1,000,000	
Polturak Emil	Physics	High temperature superconducting nanostructures.		
Rabkin Eugen	Materials Engineering	Hydrogen storage for automotive applications. New structural materials with superior mechanical properties.	3 projects less than \$500,000	6
Rachman Chaim	Materials Engineering		2 projects less than \$500,000 (\$70,000)	2
Reiter Yoram	Biology	Selection of antibodies and peptides against electronic materials, electrical control over bioreactions.		
Riess Ilan	Physics	Electrical properties of dense sintered ceramics, gas diffusion in porous ceramics, electrical properties of ultra thin ceramic layers.		
Rittel Daniel	Mechanical Engineering	Target the defense market. Mechanical properties of thin films at large strains and strain rates.	none at present	4

Researcher Name	Faculty	Research Area	Funding	Team
Ritter Dan	Electrical Engineering	Fabrication of self-assembled quantum dots using metalloorganic molecular beam epitaxy.	\$5,000,000	
Rubinstein Koby	Mathematics	Microscopic vibrations of small piezoelectric rods, transport in quantum wire networks.		
Salzman Joseph	Electrical Engineering	Coupled nano-cavities in photonic crystals for quantum information technology.	1 project less than \$500,000	
Schechter Israel	Chemistry	Chemical analysis of nanoparticles using laser induced plasmas and laser induced fluorescence fluctuations.		
Schuster Gadi	Biology	Preparation & characterization of junctions & networks of oligonucleotide-conjugated polymer & polypeptide-conjugate polymer hybrids, applicable in nanoelectronics.	Grants - 1 project less than \$500,000	4
Segev Mordechai	Physics and Solid state Institute	Nonlinear optics, photonics, quantum electronics, and nonlinear waves in photonic lattices.		
Seliktar Dror	Biomedical Engineering	Biomaterials for tissue engineering, synthetic modification of biological proteins for cellular therapeutics, polymers for cell surface manipulation and extracellular interactions.		
Semiat Raphael	Chemical Engineering	Nanoparticles, nanocatalysts, colloids in desalination and modern membranes production based on nanoparticles. Desalination using membranes, Water purification.	Different organizations, some industry - 2 projects less than \$500,000	8
Shamir Joseph	Physics	Optical procedures for nanometric feature structuring & measurements. High resolution measurements in the nano range using optical and electro-optical procedures. Inspection and measurements for nano-fabrication; Quality assurance.	European community- 1 project less than \$500,000	4
Sheintuch Moshe	Chemical Engineering	Diffusion and storage in nanopores, multiscale analysis of catalytic kinetics, self-organized nano-pores.		
Shilo Doron	Mechanical Engineering	Tensile test systems.		
Shimoni Eyal	Food, Engineering & Biotechnology	Molecular nanocapsules for bioactive compounds, drug delivery, polymer interactions at surfaces, biochip technology for proteoglycomics, food industry, pharmaceuticals industry.	2 projects less than \$500,000	5
Shoham Shy	Biomedical Engineering	Patterned neurotransmitter uncaging for spatiotemporal control of neural structures, two-photon microscopy in live tissues.		

Researcher Name	Faculty	Research Area	Funding	Team
Shoham Yuval	Food, Engineering & Biotechnology	Rational design & construction of programmable enzymatic nanoreactors.	none	2
Siegmann Arnon	Materials Engineering	Polymers containing nano-carbon black particles for electrical conductivity and chemicals sensing; polymer nanocomposites containing nano particles, electrochromic systems. Structural composite materials.	Government - 1 project less than \$500,000	5
Silverstein Michael	Materials Engineering	Nanoporous materials for low-k dielectric and sensor applications.	1 project less than \$500,000	
Sivan Uri	Physics	Selection of antibodies and peptides against electronic materials, electrical control over bioreactions, bioassembly of electronic devices. diagnostics, therapeutics, nanoelectronics.	ISF- 2 projects less than \$500,000	5
Speiser Shammai	Chemistry	Molecular scale logic gates. Molecular computing.	Applications pending- 1 project less than \$500,000	3
Srebnik Simcha	Chemical Engineering	Hierarchical modeling of molecular imprinting technology: Design of multifunction nanoscale materials. Theoretical work, associated with self-assembling of functional groups. Simulations of: molecular Imprinting, interfacial polymerization reactions, carbon nanotube stabilization.	Israeli Science Foundation, Water Research Institute (Technion)- 2 projects less than \$500,000	5
Stanger Amnon	Chemistry	Organic and organometallic chemistry: understanding structures and reactions.		
Talmon Ishi	Chemical Engineering	Cryo-TEM and HR-SEM.	1 project less than \$500,000	
Tessler Nir	Electrical Engineering	Preparation & characterization of junctions & networks of oligonucleotide-conjugated polymer & polypeptide-conjugate polymer hybrids, enhancement of the electrooptical functionality of semiconducting polymers through organic-inorganic nanocomposites, molecular/Organic optoelectronic devices. Low cost displays (OLED display). Low cost devices at telecom wavelengths.	2 projects less than \$500,000	8
Tsur Yoed	Chemical Engineering	Capacitors; metrology (for instance: line edge roughness detection); materials test and measurement.	ISF; Magnet - 3 projects less than \$500,000	10

Researcher Name	Faculty	Research Area	Funding	Team
Weihs Daniel	Aerospace Engineering	Biological fluid mechanics, fluid flow in small dimensions, miniature aircrafts.		
Yahalom Yahalom	Materials Engineering			
Yaish Yuval	Electrical Engineering	Electronics, mechanics and optics with single molecules.	none at present	
Yarin Alexander	Mechanical Engineering	Unique electrospinning method for fabrication of nanofibers enabling the formation of conducting polymers or other materials.		
Yariv Ehud	Mechanical Engineering	Low Reynolds number nano-fluid mechanics.		
Yehuda Eyal	Chemistry	Construction & characterization of ion track nanomembranes.		
Zacksenhouse Miriam	Mechanical Engineering			
Zinder Oren	Medicine	Miniaturization of clinical laboratory instrumentation & utilization of minute biological sample volumes.		
Zolotoyabko Emil	Materials Engineering	Characterization of the nanoscale materials & materials systems by means of X-ray diffraction techniques & the development of new characterization techniques.		
Zussman Eyal	Mechanical Engineering	Medical, biotechnology, composites.	1 project - \$500,000 - \$1,000,000	10

1.5 Tel- Aviv University

Researcher Name	Faculty	Research Area	Funding	Team
Ben-Jacob Eshel	Physics	Evaluation of Structural Complexity of DNA Sequences and Proteins. Bacterial Disease Treatment Using Nanoparticles. DNA-Based SET Transistor. SENE - Substrate Embedded Nano Electrodes.		
Benhar Itay	Biology	Functional Genomics and Cancer Diagnostics. Diagnostic antibody-chips.		
Boag Amir	Engineering	Photonic crystals.		
Boxman Reuven	Engineering	Electrically conductive inks, paints (especially for absorption of electromagnetic radiation), and powder metallurgy. Field emitters and probe tips. Thin film deposition, Solar cells, Electro-optical displays and detectors, Vehicular windshield heaters.		
Cheshnovsky Ori	Chemistry	Light emission from STM; Photoelectron spectroscopy of clusters and STM-related studies; Noval surface characterization.	1 project less than \$ 500,000	4
Eliaz Noam	Engineering	Orthopedic implants, Dental implants, Bone replacement materials. Life prediction and safeties in hazardous industries.	1 project - \$500,000- \$1,000,000	3
Freeman Amihay	Biology	Developing methodologies of improved bio-processing for the production of chemicals, pharmaceuticals and food additives. Incorporation of biologically active components into composite biochips, micro and nano sized systems. Bio-processing by immobilized biocatalysts. Novel applications of enzymes and antibodies, Polymeric gels, matrices and coatings. Controlled Metallization of Protein-Made Nano-Structures - The group is developing a mild method based on electroless deposition for the controlled conversion of protein or DNA templates into conducting structures or metallic nanoparticles.		

Researcher Name	Faculty	Research Area	Funding	Team
Gazit Ehud	Biology	Project 1: Study of the physicochemical basis of proteins self-assembly to nano-metric amyloid fibrils: Basic research. Project 2: Development of peptide-based nanotubes and nanospheres: Basic research Project 3: Development of self-assembled nano-ordered hydrogels to be used as biocompatible scaffolds in tissue engineering. Therapeutic agents to treat protein self-association disorders (pharmaceutical industry). Biosensors and integrated bionano devices (electronics industry. Biocompatible peptide material (organic materials and polymers industry).	Israel Science Foundation (ISF) and the German-Israel Research Fund (GIF), EU	14
Gerber Alexander	Physics	Nano-Magnets		
Goldfarb Ilan	Engineering	Self-assembled nanoparticles and nanowires. Ultra Large Scale Integrated (ULSI) devices, Quantum-confined devices, Photoemission detectors, Nano-Opto-Electro-Mechanical Systems (NOEMS). Electronics & Photonics	Competitive funding agencies, e.g. ISF, BSF, etc. 2 projects less than \$500,000 and 1 project \$500,000 - \$1,000,000	3-4
Gozin Michael	Chemistry	Organic Nano Conductors. Synthesis of novel fullerene-based amino acids and their incorporation into synthetic peptides and peptide nucleic acids. Novel Complexes of Proteins with Fullerenes and Nanotubes	\$3,200,000	
Hanein Yael	Engineering	Artificial cell, artificial muscles, micro actuators, Drug delivery, Neuronal recording, Treatment of epilepsy, Drug screening.	BSF, GIF, ISF, TAU- 3 projects less than \$500,000	6
Henis Yoav	Biology	Study of signal transduction and membrane traffic in cells. Cancer therapy. Live cell membrane properties related to cancer research.	Funding application submitted to the US-Israel Binational Science Foundation (BSF). Amount requested: \$56,925/year (for 4 years), share of Israeli group- \$39,905/year. Funding has been requested together for the two projects on nanoscale lipid domains in the Henis lab. Basic science foundations.	8
Katzir Abraham	Physics	Near Field Infrared Microscope		

Researcher Name	Faculty	Research Area	Funding	Team
Klafter Joseph	Chemistry	Medical surgery, fiber optics, lasers, electron microscopy, semiconductor manufacturing and sensors. Molecular Systems. Single-molecule photonic antenna systems.	EU - \$100,000	4
Kol Moshe	Chemistry	Crystal engineering, photosensitizers for Gratzel-type solar cells, and intercalators of DNA and related bio-molecules. Sensors for carbon monoxide.		4
Korenstein Rafi	Medicine	Controlled release drug delivery, Angioplasty. Cell Surface Characterization.	none at present	
Kotlyar Alexander	Biology	Development of DNA-based molecular wires, electron transfer in proteins and DNA, studies of homogeneous protein-fullerene complexes. G4 DNA - Organic Nano Conductors - The group has produced a novel G4-DNA wire with and without metal ions disposed in the internal cores of G tetraplexes. Novel Complexes of Proteins with Fullerenes and Nanotubes.	EC	5
Lifshitz Ron	Physics	Nanomechanics, nanoelectromechanics (NEMS), quantum electromechanics (QEM). Basic science - Understanding the mechanical behavior of objects at the mesoscopic scale.	BSF and GIF grants of \$25k to \$40k per year.	3
Margalit Rimona	Biology	Drug Delivery. Biomedical field, drug delivery technologies.	TAUTech (Tel Aviv University's emerging technology fund) - 1 project \$500,000 - \$1,000,000	10-Besides myself: 1 senior (Ph.D.) researcher, 1 researcher (M.Sc.), 7 graduate students (3 for the Ph.D. degree and 4 for the M.Sc. degree)

Researcher Name	Faculty	Research Area	Funding	Team
Markovich Gil	Chemistry	Storage media, Spintronics, Rewritable CDs. Nanoelectronics applications. Spintronic applications, especially for magnetic RAM's. Studies of magnetism on the nanoscale, nano-spintronic devices, spin polarized transport in magnetic nanostructures, magneto-optics, diluted magnetic semiconductor nanocrystals, chemical methods for growing metal nanowires on surfaces. Magnetic data storage, magnetic bio-labeling, micro-electronics.	Israel Science Foundation, \$46,000/year Internal University Fund \$10,000/year, Ministry of Science	6 Ph.D. students
Miloh Touvia	Engineering	Nano Electro-Mechanical Systems.		
Nitzan Abraham	Chemistry	Ion transport in cells. Molecular electronic devices. Fuel Cells, Controlled release drug delivery. Molecular wires.	ISF, BSF, TAU - 1 project less than \$500,000	4
Palevski Alexander	Chemistry	Quantum Wires.	\$ 2,000,000	
Peled Emanuel	Chemistry	Electrochemistry of Lithium Batteries and Fuel Cells, including Direct Methanol fuel cells (DMFC), Direct Oxidation fuel cells (DOFC), polymer electrolyte membrane (PEM) fuel cells, and more. Fuel Cells, Controlled release drug delivery.		
Portnoy Moshe	Chemistry	Dendrimers on solid support. Design and investigation of nano scale catalytic composites based on dendritic templates on solid support.		
Rabani Eran	Chemistry	Physical properties of nanometer scale materials; chemical physics problems such as self-diffusion, chemical reactions, and quantum dynamics in condensed phase systems.	ISF, BSF, European Union, Wolfson- 3 projects less than \$500,000	4
Richter Shachar	Chemistry	Molecular devices and circuits, and Bio-Sensors. Surface-Science. Micro and Nano-Electronics characterization. Molecular electronics, biotechnology.	Klal Biotechnologies, Molecular Imaging USA, grants. 1 project less than \$500,000 and 1 project \$500,000 - \$1,000,000	3
Rosenman Gil	Engineering	Flash memory and DRAM. Optical communication devices, Nonlinear optical wavelength converters, Optical waveguide devices, Acoustic frequency converters, Solid-state lasers.	Ministry of Industry, National Consortium on Microelectronics - \$300,000. Binational US-Israeli Foundation - \$150,000	3-4

Researcher Name	Faculty	Research Area	Funding	Team
Rosenwaks Yossi	Engineering	Semiconductors, semiconductor devices, measuring very short diffusion lengths, Organic Light Emitting Diodes (OLEDs).	Ministry of Industry, National Consortium on Microelectronics - \$300,000, Binational US-Israeli Foundation - \$150,000	3-4
Selzer Yoram	Chemistry	Molecular devices and circuits, and Bio-Sensors. Mainly basic research, with some prospect for applications. Molecular Electronics, Spintronics and nanoelectrocooling.	2 projects less than \$500,000	4
Shacham Yosi	Engineering	Molecular devices and circuits. Memory cells for cellular phones, PDAs etc. Biochips and Biosensors. Integrated circuits. ULSI, Medical instrumentation and homeland security.	Israel, US, Japan- 1 project \$1,000,000-\$5,000,000	6
Shapira Yoram	Engineering	Optoelectronic devices. High-power and high-speed devices and integrated circuits for microwave applications. Micro-system and biosensor applications, sensors, lcs.	Government - 2 projects less than \$500,000	10
Steinberg Ben Zion	Engineering	Photonic crystals.		

1.6 Weizmann Institute of Science

Researcher Name	Faculty	Research Area	Funding	Team
Addadi Lia	Biology	Biomaterials - nano materials and bio animals research.	\$ 2,000,000	
Averbukh Ilya	Chemical Physics	Aberration-free nanofabrication by means of laser guided atom/molecular deposition. Material processing on scales less than 100 nm. We conduct a theoretical research on nano-resolved optical measurements and material processing by means of the apertureless scanning near field optical microscopy. In addition, we are developing a new approach to atom/molecular lithography of ultra-high resolution using multi-layer light masks for enhanced focusing of atomic beams. All these studies are done in close contact with several experimental groups.	In recent years my work was funded by BSF Foundation, BMBF, Wolfson (previously Israel Ministry of Science), NATO- funded sum of \$1,000,000	2 Ph.D. students, 1 Postdocs
Bar Ziv Roy	Chemistry			
Bar-Joseph Israel	Physics	Molecular electronics.	Internal - 1 project less than \$500,000	3
David Cahen	Chemistry	How can polycrystalline solar cells outperform their single crystal analogs? Dye sensitized Solar Cells: Physical - Chemical Principles and the Importance of Electrostatic Screening. SCIENCE for the basic stuff biomedical and security for the sensor work small villages for water purification. Biosensor work is applied as defined in academia, i.e., basis as defined in industry if water purification project takes off, it will be applied.	ISF, Minerva, EU - 3 projects less than \$500,000	10
Finkelstein Alexander	Physics	Nanosopic, electronic devices for spin polarizing, spin filtering, switching, guiding, storing, spin detecting and focusing the current carriers as well as for signal splitting and wide-angle sparging of electrons. Fast operating and low-power. Spin – Based Field Effect Transistor (spin-FET).		Professor Finkelstein at the Weizmann Institute and a group of students

Researcher Name	Faculty	Research Area	Funding	Team
Gefen Yuval	Physics	Fundamental (basic) physics.	Basic Research Granting Agencies - this is a theoretical research	5
Goldfarb Daniella	Chemical Physics	Ordered mesoporous materials, with channels in the nanometer range, discovered about a decade ago, raised a wide interest in the scientific community stemmed by their complex structure and unique properties which leads to potential applications in diverse technological fields such as catalysis, membranes, microelectronics, sensors and artificial organs. The formation of these materials is initiated by supra-molecular aggregation of organic molecules in the presence of an inorganic oxide source, usually silica, which polymerizes to form solids with a well defined pore structure. Over the last decade, a wide range of materials with different structures and compositions were synthesized. Yet full control over the properties has not been achieved so far, due to the lack of detailed understanding of the interactions and processes that drive the formations of these materials. We are concentrating on the study of the formation mechanism of such mesoporous materials. In the long term will be important to all applications of nanoporous materials- catalysts, nanowires, etc.	EU, ISF, BSF, Ministry of Science- 1 project less than \$500,000	3-4
Heiblum Moty	Physics	Future sub micron electronic devices.	Scientific grants - 2 projects less than \$500,000	
Hodes Gary	Chemistry	Study of charge transport in porous, nanocrystalline films is of direct relevance to photovoltaic cells. Ability to modify optical properties of films by surface absorption.	ISF - \$160,000	3

Researcher Name	Faculty	Research Area	Funding	Team
Imry Joseph	Physics	I am concentrated on basic research, except for a few specific problems which can't be mentioned. However, my work provides the basis for the quantum transport of electrons in nanosystems, which is at the heart of many suggested applications. Decoherence is the bottleneck for quantum computing. The theory of electron transport between localized states is relevant for chemistry and catalysis.	ISF (Center of Excellence), DIP, GIF (just ended)	2-3
Josekevich Ernesto	Chemistry		1 project less than \$500,000	6
Klein Jacob	Materials and Interfaces			
Kronik Leeor	Chemistry	Rational design of materials with novel properties.	BSF, GIF, Minerva	3 M.Sc students, 2 P.h.D students, 1 Postdoc
Lahav Meir	Materials and Interfaces	Electronics and pharmlalog.	1 project less than \$500,000	2
Leiserowitz Leslie	Materials and Interfaces			
Levit Shimon	Physics			
Lubomirsky Igor	Chemistry	Infrared detectors, microwave integrated devices, microscopic fuel cells and oxygen sensors, microphones, MEMS.	ISF, BSF	1 M.Sc. student, 2 Ph.D. students, 1 Postdoc, 2 other staff
Naaman Ron	Chemistry	Molecular electronics and sensors. Microelectronic industry+bio sensors.	ISF, Ministry of Science, Ministry of Defense, DARPA - 1 project less than \$500,000	10
Oreg Yuval	Physics		DIP, Minerva, ISF	4 M.Sc. students, 2 Ph.D. students, 1 Postdoc, 1 other staff

Researcher Name	Faculty	Research Area	Funding	Team
Prior Yehiam	Chemical Physics	Material processing on scales less than 100 nm will be an important technology for further miniaturization in the microelectronics, and presently there is no other method to directly address this need.	ISF, BMBF Wolfson (previously Israel Ministry of Science) internal Weizmann grants	1 M.Sc. student, 3 Ph.D. students, 1 Postdocs, 2 other staff
Rubinstein Israel	Chemistry	Chemical and biological sensors, miniaturized optoelectronic devices. Novel catalysts. 'lab-on-a-chip' components.	Funding of \$2,000,000 from: (i) Israel Science Foundation (ii) European Union (iii) Tashtiot, Israel Ministry of Science (iv) Center for Scientific Excellence, Weizmann Institute	1 M.Sc. students, 5 Ph.D. students, 1 Postdoc, 1 other staff
Sagiv Jacob	Materials and Interfaces			
Shahar Dan	Physics			
Shanzer Abraham	Organic Chemistry		\$1,000,000	
Shapiro Ehud	Mathematics & Computer Science	Our group is working on a molecular computer in which both input and output information are in molecular form. We believe that such computers, using biological molecules as input data and biologically active molecules as outputs, could interact with endogenous biomolecules, and enable the development of a system for 'logical' control of biological processes. This system could be embedded, or transiently introduced, to a living cell, allowing a programmed control system over cell behavior. Such a system, in the form of an autonomous biomolecular computer could logically analyze the levels of messenger RNA species, and in response produce a molecule capable of effecting levels of gene expression. We propose to perform experimental investigation of the steps needed to employ this approach in-	1 project less than \$500,000	3

		vivo. This research might be applicative also to biochemical sensing, genetic engineering and even medical diagnosis and treatment. Our long term objective is to develop a 'Doctor in a cell' – molecular-sized device that can roam the body, equipped with medical knowledge. It would diagnose the disease by analyzing the data available in its biochemical environment, and treat it by synthesizing/activating and delivering the appropriate drug molecules. This kind of device might, in the future, be delivered to all cells in a specific tissue, organ or the whole organism, and cure or kill only those cells diagnosed with a disease.		
Stern Adi	Physics		BSF, ISF	1 M.Sc. student, 2 Ph.D. students, 1 postdoc
Tenne Reshef	Chemistry	There are a few hundred industries and bodies that showed interest in this technology.	The fundamental research is supported by grants from foundations such as ISF, GIF, Minerva. The applied parts of the research are supported by NanoMaterials 1 project less than \$500,000	8
Van Der Boom Milko	Organic Chemistry	Optical telecommunications and public networking require high-speed optical-electrical data interconversion. This in turn drives a vast need for advanced, extremely efficient device components such as waveguides, switches, emitters, and detectors. The development of robust organic thin films and their integration into prototype devices is a great challenge, which promises new device properties, enhanced performance, and eventually lower production costs. - All-organic based devices, including electro-optical modulators.- "Bottom - up" film growth methods.	NATO, European Union, Dow Chemicals, Israel Science Foundation, The Israel Academy of Sciences and Humanities, Minerva Foundation, Weizmann Institute	2 M.Sc. students, 1 Ph.D. students, 2 Postdocs, 1 other staff, 1 visiting professor, 1 summer student

Researcher Name	Faculty	Research Area	Funding	Team
Vega Shimon	Chemical Physics	Soild State NMR.		
Wagner Daniel	Chemistry		\$1,000,000	
Yaacobi Amir	Physics			
Zeldov Eli	Physics	Super connectivity nano photonics.	\$250,000	

1.7 Research Cooperation with other Universities

Researcher name	University	Cooperation with other Universities	Type of cooperation	With whom
Abraham Nitzan	Tel-Aviv	Weizmann		Cahen, Naaman, Kronik
Aurbach Doron	Bar Ilan	Tel Aviv	There is an official knowledge center on fuel cells, energy storage & conversion supported by the Ministry of Science & Technology which is common to my group and the group of Emanuel Peled at TAU	Prof. Emanuel Peled
Avishai Yshai	Ben- Gurion	Bar Ilan	Discussions, visits	Piers Coleman (Rutgers), Richard Berkovits (Bar Ilan), Benoit Doucot (Paris 7), Naoto Nagaossa (Tokyo), Mahito Kohmoto (Tokyo)
Baer Roi	Hebrew	TAU		TAU - Prof. Eran Rabani
Balberg Isaac	Hebrew	Within the Hebrew University.		Cooperation with other universities – Prof. Amir Saar, Department of Applied Physics, The Hebrew University: Transport and optical spectroscopy of semiconductor nanocrystals and quantum rods Prof. Oded Millo, Racah Institute of Physics, The Hebrew University: Local conductance measurements of metal/insulator composites

Researcher name	University	Cooperation with other Universities	Type of cooperation	With whom
Banin Uri	Hebrew	Technion, Weizmann, Tel Aviv University		1. Prof. Nir Tessler, EE Technion. Nanocrystal-polymer NIR devices 2. Prof. Ron Naaman (Weizmann, Chemical Physics), Dr. Yossi Paltiel (Soreq NRC), NIR optical devices 3. Prof. Eran Rabani (Chemical Physics, TAU), Metal-semiconductor nanocrystals (nanodumbbells), Self assembly of nanocrystals 4. Prof. Alberto Gabizon (Head of Oncology Dept., Sharei Zedek hospital, Jerusalem) Cancer imaging, detection and drug delivery 5. Project with Intel Israel. 6. Multiple cooperations within Hebrew University: Prof. Oded Millo (Physics) SPM studies of electronic properties of nanocrystals Prof. Itamar Willner (Chemistry) Biological marking with nanocrystals Prof. David Avnir (Chemistry) Nanocrystals encapsulated in glasses via sol-gel processes
Berkovits Richard	Bar Ilan	Weizmann	Joint ISF grant	Prof. Y. Gefen
Cahen David	Weizmann	HUJI, BIU, TAU	UJI not sponsored; BIU if water purification project will be funded by DFG; TAU, ISF Bikura fund. TAU application for joint energy research	I. Balberg, O. Millo. Physics BIU: A. Zaban, Chemistry TAU: A. Nitzan, Chemistry, Y. Rosenwaks, Phys. Electronics
Davidov Dan	Hebrew	Collaboration with Prof.A. Gedanken, Israel		
Deutsch Moshe	Bar Ilan	Technion, Tel-Aviv	Research coopertaion	
Ehrenberg Benjamin	Bar Ilan	Within Bar Ilan	Joint research	Profs. Zvi Malik & Yeshayahu Nitzan

Researcher name	University	Cooperation with other Universities	Type of cooperation	With whom
Feldman Yuri	Hebrew	Within the Hebrew University		Prof. A. Saar, Y. Shapir, Department of Applied Physics, and I. Balberg, Racah Institute of Physics, Dielectric relaxation study of porous silicon Prof. U. Kaatzke, Structure and non-exponential dynamics in glass forming systems Prof. R. Agranat, Department of Applied Physics, Dielectric properties of new electro-optic materials
Goldfarb Daniella	Weizmann	Ben- Gurion, Technion	Collaborative research	Oren Regev, Rachel Yerushalmi, Miron Landau, Chemical Engineering, BGU Ishi Talon, Technion, chemical engineering
Hodes Gary	Weizmann	Cooperation with Ben Gurion University and Bar Ilan University		
Imry Yoseph	Weizmann	BGU, TAU	Discussions	A. Aharony, O. Entin, Y. Manassen
Izhak Etsion	Technion	Weizmann, Haddasah Med. School	Testing of nano-particles as additives to lubricants	Tenne Reshef, Yechezkiel Barenholz
Keinan Ehud	Technion	The Weizmann Institute, The Hebrew University	Complementary research projects	Gershon Martin, Shmuel Wolf
Klein Lior	Bar Ilan	Technion, Tel-Aviv	Sources of thin films for our research	
Kotlyar Alexander	Tel- Aviv	I am collaborating with Israeli Universities in the the frame of DNA nanowires. see the website http://www-dnananowires.uni-r.de	Research	
Lahav Meir	Weizmann	Technion Haifa	Complementary spectroscopic measurements	Prof. Efrat Lifshitz

Researcher name	University	Cooperation with other Universities	Type of cooperation	With whom
Lewis Aaron	Hebrew	Tel- Aviv University, Bar-Ilan University, Weizmann.		Professor Gil Markowitz, Tel-Aviv University, Magneto Optical and non-linear optical properties of nanometallic particles Professor Chaim Sukenik, Bar-Ilan University, Nanochemistry Professor Mudi Sheves, Weizmann Institute and Professor M. Ottolenghi, Institute of Chemistry, Measuring the AFM dynamics of Proteins Professor Daniel Mandler, Institute of Chemistry, Nanoelectrochemistry. Professor Nissim Ben-Yosef, 3D Deconvolution Professor Dan Davidov, Racah Institute of Physics, NSOM of Photonic Band Gap Materials Professor Uri Banin, Center for Nanoscience and Nanotechnology, Hebrew University, Single Semiconductor NanoParticle Imaging
Linder Charles	Ben- Gurion	In the water desalination project we are working on a joint Tashtiot project with the Technion in Haifa.	Working on different aspects of water purification	Professors Hasson and R. Samiat
Magdassi Shlomo	Hebrew	Win the Hebrew University Bar Ilan, Technion, and universities participating in joint EU projects.	Joint researches	Prof. Gedanken, Prof. Talmon, Prof Cohen Prof. Y. Sasson, Hebrew University, Nanocapsules for agricultural applications Prof. Ishi Talmon, Technion, Visualization of nanostructures

Researcher name	University	Cooperation with other Universities	Type of cooperation	With whom
Margel Shlomo	Bar Ilan	Weizmann, Tel-Aviv, Jerusalem	Research	
Markovich Gil	Tel- Aviv	Ben-Gurion, Hebrew	Basic research - studies of properties of materials	Ben-Gurion, Hebrew
Marks Robert	Ben- Gurion	Universite Joseph Fourier, Grenoble, Ecole Normale Superieur , Cachan, Turk University, Torko, Ec-Joint Researcher Center, ISPRA	Exchange Students	
Meir Yigal	Ben- Gurion	Weizmann, Technion	Collaborative research with theorists, analysis of experimental data	Yuval Gefen, Amir Yacoby, Dan Shahar, Ady Stern (Weizmann), Assa Auerbach, Efrat Shmshoni (Technion)
Millo Oded	Hebrew	Hebrew University, Tel-Aviv University		Prof. Uri Banin, Dept. of Physical Chemistry, The Hebrew University: Tunneling and optical spectroscopy of semiconductor nanocrystals and quantum rods. Prof. Guy Deutscher, Tel Aviv University and Gad Koren, Technion: Tunneling spectroscopy of thin YBCO films. Prof. Isaac Balberg, Racah Institute of Physics, The Hebrew University: Local conductance measurements of metal/insulator composites
Naaman Ron	Weizmann	Hebrew University and NRC (Mamag)	Join project in the framework of research supported by the Ministry of Defense	Prof. Uri Banin (HU), Dr. Yossi Paltiel (NRC)
Oren Yoram	Ben- Gurion	Technion-Haifa	Cooperation in research	Grand Water Institute (Technion)
Orenstein Meir	Technion	Cooperation with Israeli Universities		
Peskin Uri	Technion	Cooperation with Israeli Universities		

Researcher name	University	Cooperation with other Universities	Type of cooperation	With whom
Porath Danny	Hebrew	Hebrew University, Tel-Aviv University		Dr. A. Kotlyar, Biochemistry Department, Tel Aviv U., G4-DNA and M-DNA synthesis. Dr. S.Yitzchaik, Chemistry Institute, Hebrew U., PC-DNA synthesis. Prof. A. Nitzan, School of Chemistry, Tel Aviv U., Theory of the electrical properties of DNA. Prof. J. Jortner, School of Chemistry, Tel Aviv U., Theory of the electrical properties of DNA.
Rabani Eran	Tel- Aviv	Hebrew University	Research collaboration	Profs. Uri Banin and Roi Baer (HUJI).
Saar Amir	Hebrew	Hebrew University, Technion		Prof. Shlomo Yitzchaik, Department of Inorganic and Analytical Chemistry, the Hebrew University of Jerusalem, Porous silicon for bio-photonic applications Prof. Micha Spira, Department of Neurobiology, the Hebrew University of Jerusalem, Porous silicon for bio-photonic applications Prof. J. Shappir, Dept. of Applied Physics, the Hebrew University of Jerusalem, Porous silicon for optoelectronic applications Prof. Robert Besserman, Solid State Institute the Technion, Haifa, GaAs and Silicon quantum nanostructures.
Schiller Avraham	Hebrew			Prof. Amnon Aharony, Tel-Aviv University, Prof. Ora Entin-Wohlman, Tel-Aviv University, and Prof.Yoseph Imry, the Weizmann Institute of Science, "Measurement of transmission phases in Aharonov-Bohm interferometers."
Semiat Raphael	Technion	BGU	Research financed by the Ministry of Science	

Researcher name	University	Cooperation with other Universities	Type of cooperation	With whom
Shapiro Ehud	Weizmann	Technion-Israel Institute of Technology, Haifa, Israel and the Hebrew University, Jerusalem, Israel	Consultation	Prof. Ehud Keinan (Technion) and Prof. Naftali Tishby (Hebrew University)
Sivan Uri	Technion	Tel Aviv	Provided us with phage display library	Itai Benhar
Sonin Edouard	Hebrew	Technion, Weizmann Institute	Discussion of results	Imry, Levinson (Weizmann), Reznikov (Technion)
Tenne Reshef	Weizmann	We collaborated in the past and continue to collaborate with numerous university research groups in Israel and abroad	1. D. Shahar (Weizmann)- Superconductivity of individual inorganic nanotubes & nanowires. 2. H.D. Wagner (Weizmann)- mechanical properties of WS2 nanotubes	We collaborated in the past and continue to collaborate with numerous university research groups in Israel and abroad
Tessler Nir	Technion	Hebrew Tel-Aviv	Joint projects	Prof. Uri Banin, Prof. Yossi Rosenwaks
Tsur Yoed	Technion	Within the NFM consortium	Discussions	Within the Technion, close cooperation with E. Rabkin on agglomerate strength project
Ulman Avi	Bar Ilan	Technion, Weizmann	Joint research	Avi Marmor, Ron Naaman
Yerushalmi - Rozen Rachel	Ben- Gurion		Research	Prof. Y. Cohen Technion, Prof. J. Klein WI.

Researcher name	University	Cooperation with other Universities	Type of cooperation	With whom
Yizchaik Shlomo	Hebrew	Within the Hebrew University		Prof. Mica Spira, Institute of Life Sciences (neurobiology) and Prof. Joseph Shappir, School of Applied Physics The Hebrew Univ., Interfacing Neurons and Molecularly Modified Silicon-Based Electronic Devices Prof. Amir Saar, School of Applied Physics – The Hebrew Univ., Molecularly Modified Porous Silicon for bio-photonics applications.
Zaban Arie	Bar Ilan	WIS	Basic science collaboration	
Zeldov Eli	Weizmann	Cooperation with Bar Ilan University		

1.8 International Cooperation

Researcher name	University	International Institutes	Type of cooperation	With whom
Aurbach Doron	Bar-Ilan	People at MIT USA,	Basic studies	R&D people
Averbukh Ilya	Weizmann	Germany		
Avishai Yshai	Ben-Gurion	Rutgers, Paris 7, Tokyo, Saclay	Discussions, visits	Piers Coleman (Rutgers), Benoit Doucot (Paris 7) Naoto Nagaossa (Tokyo), Mahito Kohmoto (Tokyo), J. M. Luck (Saclay)
Baer Roi	Hebrew	UCLA	UCLA - Prof. Danile Neuhauser	
Bahir Gad	Technion	University of California Santa Barbara, University of Paris Sud-CNRS	Research collaboration based on grants like BSF	Professors P. Petroff and J. Speck from UCSB, Professor F. Julien from Paris-Sud
Basch Harold	Bar-Ilan		Joint research	Prof. Mark Ranter Northwestern Uni.
Berkovits Richard	Bar-Ilan	Joint research programs		Prof. B. Altshuler (Princeton, USA), Prof. F. von Oppen (Free University Berlin, Germany), Prof. I Lerner (Birmingham, UK)
Berman Amir	Ben-Gurion	Germany	Joint Research	Prof. Tim Salditt, Goettingen
Buks Eyal	Technion	USA	Theoretical study	Bernard Yurke, Bell labs
Cahen David	Weizmann	USA	With Universities in USA (Princeton, Arizona State U), in Italy, with Modean Nanocentre, Catania Lamsum lab, Univ. Roma I, Univ, Ferrara Germany: Hahn Meitner Inist., Univ Wuerzburg Australia: UNSW, Physics	A. Kahn, S. Lindsay E. Molinari, G., Marletta, F. Deckert, R. Zandoni, A. M. Rampi T. Dittrich, HW Schock, E. Umbach M. Gal
Davidov Dan	Hebrew	Germany		Prof. M. Farle, Germany, A Rogatch Germany
Deutsch Moshe	Bar-Ilan	USA	Research cooperation	Harvard, Brookhaven National laboratory, Max-Planck-Institute-Stuttgart and others

Researcher name	University	International Institutes	Type of cooperation	With whom
Ehrenberg Benjamin	Bar-Ilan	USA	Joint research	Louisiana State University, Northwestern University, SUNY Stony Brook, NJ Inst. of Technology
Eisenstein Gad	Technion	Cooperation with European research institutes		
Feldman Yuri	Hebrew	International cooperation with the EU and USA.		Prof.A. Sokolov, University of Akron (USA), Protein dynamics from Hz to THz: Hierarchy, Scaling and Relation to Functions Prof. L. Trakhtanberg, Institute of Physical Chemistry (Moscow, Russia) and T. Pakula, MPIP in Mainz (Germany), Dielectric Properties of Nano-Composed Tailor-Made Metal-Polymer Materials
Fischer Baruch	Technion	International Cooperation: Universities in the USA		
Folman Ron	Ben-Gurion	Numerous universities in Europe and the US		
Frey Gitti	Technion	BSF and initial contacts for future collaboration		
Gefen Yuval	Weizmann	US, Germany		
Gershoni David	Technion	I cooperate with colleagues abroad under the umbrella of BSF and GIF	Cooperative research effort	University of California in Santa Barbara, California USA and University of Wierzburg, Germany
Gheber Levi	Ben-Gurion		Research	Robert Marks, Razi Vago, Zvi Priel, Hanna Rapaport, Yossi Kost
Goldfarb Ilan	Tel- Aviv	Oxford University	Scientific	Prof. Andrew Briggs

Researcher name	University	International Institutes	Type of cooperation	With whom
Henis Yoav	Tel- Aviv	Several cooperations with scientists from the USA, Germany and Australia.	Basic research. My lab contributes the expertise in fluorescence imaging and laser-based FRAP with sub-micron laser beam to study the interactions of proteins with nano-scale domains in the plasma membrane of live cells, focusing on several cancer-related proteins. The collaborators contribute molecular biology and cell biology aspects of the projects	(1) Prof. Steve Martin, University of California at Berkeley, CA, USA; (2) Prof. Mina J. Bissell, Lawrence Berkeley National Laboratory, Berkeley, CA, USA; (3) Prof. Harvey F. Lodish, Whitehead Institute for Biomedical Research, Cambridge, MA, USA; (4) Prof. Peter Gierschik, University of Ulm, Germany; (5) Prof. Petra Knaus, Free University of Berlin, Germany; (6) Prof. John F. Hancock, Institute for Molecular Bioscience, University of Queensland, Brisbane, Australia
Imry Yoseph	Weizmann	Germany, US, Canada		
Joselevich Ernesto	Weizmann	USA	BSF Grant	Mildred S. Dresselhaus (MIT)
Kaplan Wayne D.	Technion	Cooperation with Universities in Europe and the European Union		
Kashi Yechezkel	Technion	USA		International Cooperation with universities in the USA
Keinan Ehud	Technion	The Scripps Research Institute, Max Planck Institute, UCLA, University of Essen	Complementary research projects	Philip Dawson, Kendall Houk, Walter Thiel, Roland Boese.
Klein Lior	Bar-Ilan	Yale, Stanford	Sources of thin films for our study	Prof. Ahn (Yale), Prof. Beasley (Stanford)
Kotlyar Alexander	Tel- Aviv	I am collaborating with several European Universities in the the frame of DNA nanowires. see the website http://www-dnananowires.uni-r.de	Research	
Lahav Meir	Weizmann	With Dutch scientists	Use of the synchrotron in Hamburg for Grazing angle ~X-ray diffraction measurements	Dr. Kristian Kjaer

Researcher name	University	International Institutes	Type of cooperation	With whom
Lellouche Jean-Paul	Bar-Ilan		Academic relationship	Universities of Urbino, Greenwich, Kent, Nottingham, Seoul
Lev Ovadia	Hebrew	International cooperation with the EU		
Lifshitz Efrat	Technion	Universities in Germany and USA		
Lifshitz Ron	Tel- Aviv	USA	Scientific collaboration	Prof. Michael Cross and Prof. Michael Roukes, California Institute of Technology
Lifshitz Shay	Technion	Hong Kong	1) Joint research in Technion and in City University Hong Kong (I am an adjunct professor of CityU HK). 2) Pending application to DIP with Max Plank Inst. Halle and with Univ. Paderborn	(1) Prof. S.T. Lee, City University Hong Kong, (2) Prof. U. Goeselle, Max Plank Inst. Halle, Germany (3) Prof. Th. Fraunheim, Univ. Paderborn, Germany
Linder Charles	Ben-Gurion	In our BSF project on drug delivery we are cooperating with Columbia University in NYC	Shared Research & Development of different parts of the project	Professor Richard Dekelbaum
Lotan Noah	Technion	USA		MIT, Duke University, Stanford University
Magdassi Shlomo	Hebrew	EU, France, Russia	Joint research-EU projects	Prof. Adam Baszkin, University Paris-Sud, Protein based nanoparticles Prof.A. Levashov, Moscow University, Protein based colloidal nanostructures
Manassen Yishay	Ben-Gurion	USA	Cooperation with a theory group (Los Alamos National Lab) Cooperation with a group on magnetic resonance, University of Florence, Italy, CNR Pisa, Italy Cooperation with a group on nanoparticles, Indian Institute of Science, Bangalore, India	Sasha Balatsky, Los Alamos. Dante Gatteschi (Florence) and Massimo Martinneli (Pisa). Dipankar Das Sarma, Bangalore India
Mandler Daniel	Hebrew	With a few places in Germany	Academic collaboration	University of Oldenburg, Ulm University
Margel Shlomo	Bar Ilan	MIT	Research	Prof. Edwin Thomas

Researcher name	University	International Institutes	Type of cooperation	With whom
Mastai Yitzhak	Bar-Ilan	Germany	Joint Research	Prof. Dr. Markus Antonietti Max Planck Institute of Colloids and Interfaces Colloids Division 14424 Potsdam, Germany
Meir Yigal	Ben-Gurion	Stanford, Harvard, Princeton	Collaborative research with theorists, analysis of experimental data	David Goldhaber (Stanford), Charles Marcus (Harvard), Ned Wingreen (Princeton)
Naaman Ron	Weizmann	UC Santa Barbara, University of Pittsburgh, Duke University, University of Karlsruhe.	Joint research	Prof. D. Awschalom and Prof. E. Beth (UCSB), Prof. D. Waldeck (Pittsburgh), Prof. D. Beratan (Duke), Prof. M. Kappes (Karlsruhe)
Nissim Garti	Hebrew	AGIS	1. Y. Zhu (Nottingham)-mechanical properties of IF; 2. J.M. Martin (Lyon)-tribological properties of IF; 3. C. Thomsen (TU Berlin)-Raman of individual WS2 nanotubes; 4. J. Meusfeld (U. Tennessee)-low temp. IR spectroscopy of IF; 5. G. Seiffert (TU Dresden)-theoretical aspects of IF; 6. C. Jansen- MPI Stuttgart (IF-Cs2O), and more.	We collaborated in the past and continue to collaborate with numerous university research groups in Israel and abroad
Nitzan Abraham	Tel- Aviv	Various universities		
Oren Yoram	Ben-Gurion	Norit - the Netherlands (Industry), GKSS- Germany, the University of Genova		
Porath Danny	Hebrew	Spain, France, Germany		Dr. G. Cuniberti, Max-Planck-Institut, Dresden, Theory of electrical transport in DNA Prof. A. Rubio, Dpto. Fisica de Materiales, U. Pais Vasco, San Sebastian, Theory of the electrical properties of DNA Dr. J. Gomez, Dpt. Fisica de la Materia Condensada, Universidad Autonoma de Madrid, Scanning probe microscopy of single molecules

Researcher name	University	International Institutes	Type of cooperation	With whom
Rabani Eran	Tel- Aviv	USA	Research collaboration	Columbia University, Berkeley. Profs. David Riechman and Louis Brus (Columbia), Prof. Phillip Geissler (Berkeley)
Rabin Yitzhak	Bar Ilan	Rowland Institute at Harvard University	Joint research project	Dr. A. Meller
Rabkin Eugen	Technion	Germany, Australia	Exchange of samples, researchers visits	Prof. Y. Estrin, Technical University of Clausthal, Germany. R. Lapovok, Monash University, Melbourne, Australia
Rachman Chaim	Technion	Stockholm University	Collaboration	Dr. Zhijian Shen
Regev Oren	Ben-Gurion	1.Chemical Center, Physical Chemistry 1.Lund, Sweden 2. Eindhoven University of Technology TU/e, Polymer laboratory lab.	1. Liquid crystals and imaging of aggregates 2. Conductivity of polymer enhancement using nanotubes	Cor, E Koning, Bjoern Lindman
Rosenwaks Yossi	Tel- Aviv	USA, Belguim, Germany		
Saar Amir	Hebrew	Switzerland, China		Prof. Eli Kapon, EPFL, Lausanne, Switzerland, GaAs quantum wires grown on non-planar substrates Prof. Zuimin Jiang and Prof. F. Lu, Fudan University, Shanghai, China. Silicon-Germanium quantum dots
Salzman Joseph	Technion	ARC, Australia.		
Schiller Avraham	Hebrew	USA		Prof. Selman Hershfield, Department of Physics, University of Florida, "The nonequilibrium Kondo effect." Prof. Natan Andrei, Department of Physics, Rutgers University, "Size dependence of the Kondo effect in nano-structures"

Researcher name	University	International Institutes	Type of cooperation	With whom
Semiat Raphael	Technion	Yes, with partners in different locations	We had a project with the EU (4th program), a few companies and some researchers. I have cooperation with Australia and some cooperation with Turkey and Italy	Mainly University professors
Shamir Joseph	Technion	USA	Academic	Imperial College, University of Utah
Shapiro Ehud	Weizmann	In the future, with Harvard University.	To be determined in the future	Dr. Yaakov Benenson
Shimoni Eyal	Technion		Exchange of info + exploratory phase for future collaboration	National Starch and Chemical Co.
Siegmann Arnon	Technion	EU	Consortium	
Sivan Uri	Technion	Europe	Scientific	Italy, Netherlands
Sonin Edouard	Hebrew	Nanogroup of Low Temperature Laboratory, Helsinki University of Technology	Collaboration and joint papers	Mikko Paalanen, Pertti Hakonen
Srebnik Simcha	Technion	USA		Columbia Universit
Sukenik Chaim	Bar Ilan	GIF supported research	Collaboration	Prof Fritz Aldinger, MPI Stuttgart
Talmon Ishi	Technion	Cooperation with Flamel, Procter & Gamble		
Tenne Reshef	Weizmann	We collaborated in the past and continue to collaborate with numerous university research groups in Israel and abroad.		
Tessler Nir	Technion		Joint Projects	Nanocenter Cork, Ireland; Avecia Chemicals UK; Catholic Univ. Leuven; Korea University
Ulman Avi	Bar-Ilan	University of Heiodelberg, SUNY Stony Brook	Joint research	Michael Grunze, Miriam Rafailovich.
Wilner Itamar	Hebrew	GIF and DIP projects		Prof. Harald Fuchs (Muenster), Prof. D. Fenske (Karlsruhe), Prof. W. Knoll (Mainz).
Yaish Yuval	Technion	USA		Cooperation with Cornell University (US)
Yerushalmi - Rozen Rachel	Ben-Gurion		Research	A few groups in Germany and the US

Researcher name	University	International Institutes	Type of cooperation	With whom
Yizchaik Shlomo	Hebrew	USA		Prof. Mark A. Ratner, Chemistry Dept. Northwestern Univ. Evanston IL (USA) Quantum Mechanical Calculations of semiconductor-molecule interactions
Zaban Arie	Bar-Ilan		Basic science collaboration	
Zussman Eyal	Technion	Marburg University, Germany; Northwestern University USA.	Grants	Prof. R.S. Ruoff (Northwestern), Prof. A. Greiner (Marburg), Prof. J. Wendorff (Marburg)

1.9 Commercial Cooperation

Researcher name	University	Company	Type of cooperation	With whom
Aurbach Doron	Bar-Ilan	With LG Korea, Merck Germany, Tadiran-Batteries Israel, private investors (ATU Ltd Israel, Idea1 Ltd USA)	Materials studies, development of magnesium batteries (ATU, Idea1) upscaling Mg batteries with Tadiran	R&D people at the companies
Buks Eyal	Technion	Intel		
Cahen David	Weizmann	Major Electronics company	Support for exploratory work	
Domb Avi	Hebrew	Dexxon, Elutex, Yissum	Product development, testing	
Gazit Ehud	Tel- Aviv	Clal Industries and Investments Ltd.	Sponsored research	
Gozin Michael	Tel- Aviv	Cooperation with CLAL, Telem, Intel, Darpa, Israeli Ministry of Defense		
Grader Gideon	Technion	Cooperation with government agencies.		
Hanein Yael	Tel- Aviv	EI-Mul		
Heiblum Moty	Weizmann	Gal EI / Elta	We do fabrication, mostly ebeam work	Gal EI / Elta
Hoffman Alon	Technion	Commercial cooperation with Tower Semiconductors, Intel, Rafael		
Kaplan Wayne D.	Technion	Israeli Ministry of Defence		
Katz Eugenii	Hebrew	Commercial cooperation with Sensogen		
Keinan Ehud	Technion	Taro Pharmaceutical Industries Ltd.	Drug discovery	
Klein Lior	Bar-Ilan	Intel		
Kotler Moshe	Hebrew	Commercial cooperation with Bioline		
Lifshitz Efrat	Technion	Commercial cooperation with Bsecure, ELOP		

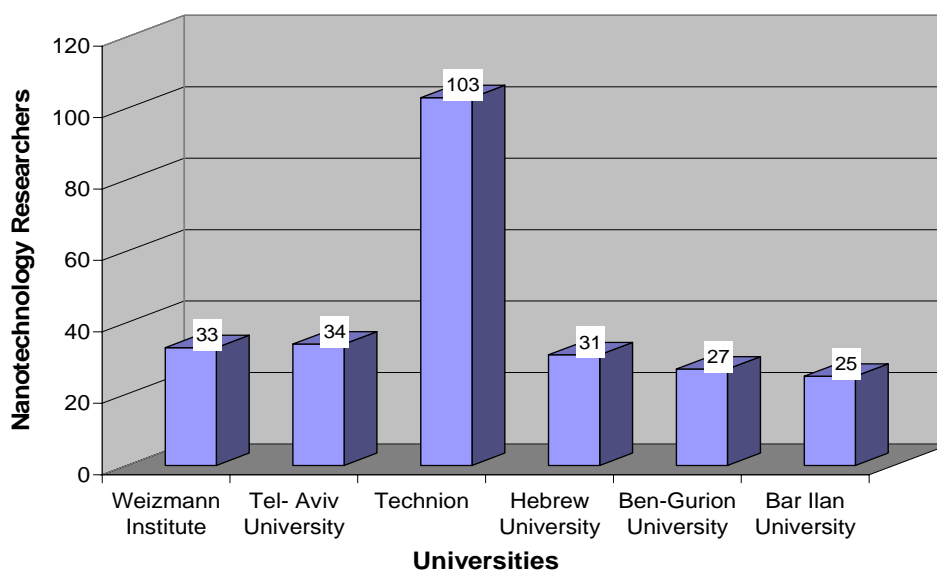
Researcher name	University	Company	Type of cooperation	With whom
Magdassi Shlomo	Hebrew		Joint research projects	Makteshim, Cima Nanotech, B. G. Polymers, Sol-Gel Technologies, Bromine Ltd., Dead Sea Labs
Naaman Ron	Weizmann	Chiaro, Novatrans	Joint research projects	
Nemirovsky Yael	Technion	Cooperation with Rafael, ELOP		
Nissim Garti	Hebrew	AGIS		
Oren Yoram	Ben- Gurion	Mekorot	Cooperation in research	Division of Desalination (Mekorot)
Palevski Alexander	Tel- Aviv	Vishay		
Rabkin Eugen	Technion	Cooperation with diverse Israeli companies in the framework of MAGNET project supported by the Israel Ministry of Trade and Industry	Exchange of samples and data	Nanosize, Ahava, SciTexVision
Rachman Chaim	Technion	Cooperation with Rafael		
Richter Shachar	Tel- Aviv	Intel		
Ritter Dan	Technion	Comercial cooperation with Elta		
Rosenbluh Michael	Bar Ilan	Cooperation with private companies and government agencies.		
Semiati Raphael	Technion	With Mekorot, IDE.	Research for Mekorot, Research with IDE	With Mekorot, IDE
Shacham Yosi	Tel- Aviv	Intel	Joint research	
Shanzer Abraham	Weizmann	Cooperation with MSTech, Defense Industry		
Shapira Yoram	Tel- Aviv		Collaboration and tech transfer	Gal El
Sivan Uri	Technion		License	
Tsur Yoed	Technion	Within the NFM and WFCM consortiums	Joint research on (a) line edge roughness detection; (b) agglomerate strength (c) EPD of nano dielectric materials	(a) Nova; (b) Cima-nanotec, Nanosize, makteshim, TRBM; (c) Cerel

Researcher name	University	Company	Type of cooperation	With whom
Wagner Daniel	Weizmann	Cooperation with IAI, EU, NOESIS, CNT		
Wilner Itamar	Hebrew	Cooperation within Ministry of Science Tashtiot process		Prof. Sukenik, Bar-Ilan, Dr. Paz, Technion
Yizchaik Shlomo	Hebrew	Commercial coopearion with nanolayers		
Zaban Arie	Bar-Ilan		Magnet Program	Polymer Industry

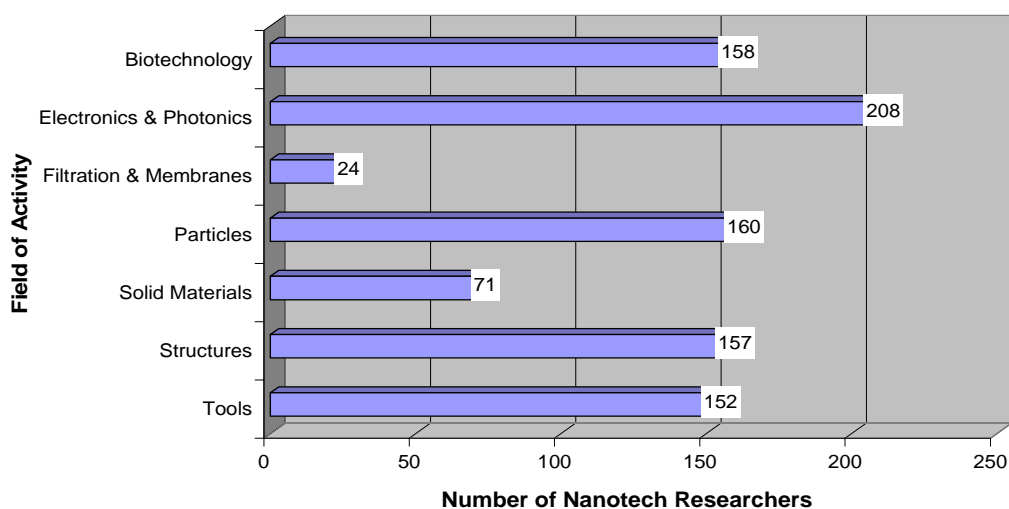
1.10 Additional Information

In addition to the filled questionnaires we have collected general market information from follow up phone conversations with researchers and heads of Nanotechnology centers at the Universities, from USISTF data and from other public source information. The graphs below summarize additional information that we have processed from the survey results.

1. Number of Nanotechnology researchers by research institute

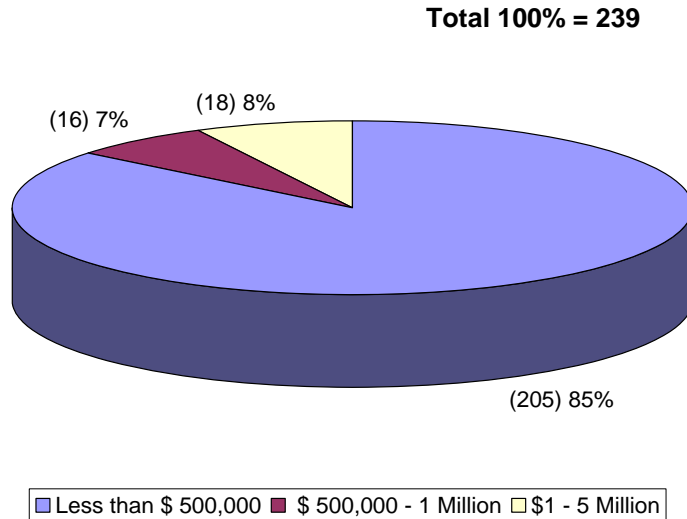


2. Number of Nanotechnology researchers by field of activity*

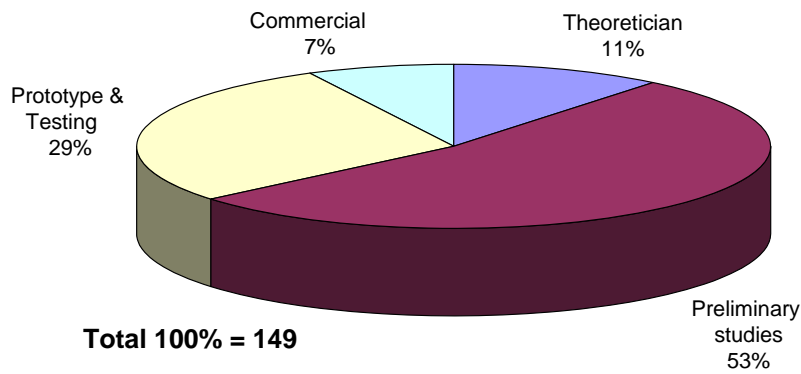


*Researcher can operate in more than one field of activity

3. Number of Nanotechnology projects by funded amount *



4. Number of Researchers by level of research completion*

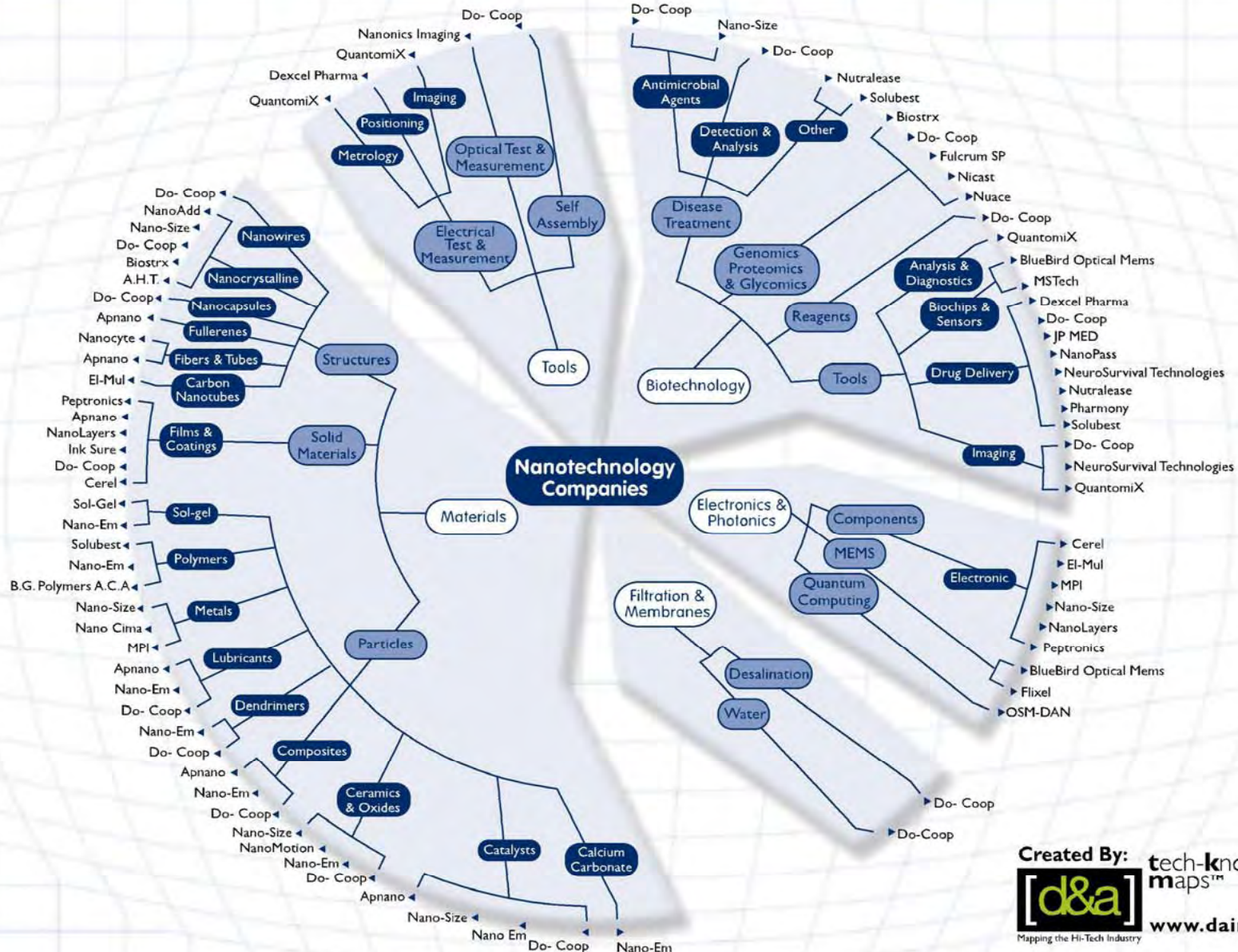


*Only data from researchers who returned filled survey.

5. *Number of Funded Projects by Faculty*

Faculty	Less than \$500,000	\$500,000 - \$1,000,000	\$1,000,000 - \$5,000,000
Physics	38	3	2
Medicine	3		
Mechanical Engineering	3	1	
Mathematics	1		
Materials Engineering	9		
Materials and Interfaces	1		
Food, Engineering & Biotechnology	3		
Environmental Engineering	4		
Engineering	12	2	1
Electrical Engineering	8		2
Chemistry	69	6	8
Chemical Physics	1		
Chemical Engineering	26	1	3
Biotechnology Engineering	12		
Biology	6	2	2
Applied Biosciences	9	1	
Total	205	16	18

Section 2: Israeli Nanotechnology Companies



2.1 Israeli Nanotechnology Companies - General Information

Company Name	Website	Founded	Number of Employees
A.H.T.	www.a-h-t.com	1999	4
ApNano Materials	www.apnano.com	2002	13
B.G. Polymers A.C.A	www.bgppl.co.il	1982	
Biostrx	www.biostrx.com	2001	
BlueBird Optical Memes	www.bluebird-optical-memes.com	2001	21
Cerel Ceramic Technologies	www.cerel.com	1998	10
Cima NanoTech (NPI)	www.cimananotech.com	1995	12
Dexcel Pharma	www.dexcel-pharma.com	1988	55
Do- Coop Technologies	www.docoop.com	1997	7
EI-Mul Technologies	www.el-mul.com	1992	24
Flixel	www.flixel.com	1998	1
Fulcrum SP	www.fulcrumsp.com	2001	16
Ink Sure	www.inksure.com	1996	18
JP Med	www.jpmed.co.il	1999	
Metal Powders Industries (MPI)		1999	
MSTech	www.ms-nose.com	2002	4
NanoAdd		2003	3
NanoCyte	www.nanocyte.com	2000	7
Nano-Em	www.ofek.org.il	2003	3
Nanolayers	www.nanolayers.com	2001	10
Nanomotion	www.nanomotion.com	1994	40
Nanonics Imaging	www.nanonics.co.il	1997	25
NanoPass	www.nanopas.com	2000	5
Nano-Size	www.nano-size.com	2000	7
NeuroSurvival Technologies	www.nst.co.il	1997	16
Nicast	www.nicast.com	1995	9
Nuace	www.nuace-bio.com	2001	4
NutraLease	www.nutrarelease.com	2000	6
OSM-DAN		2002	
Peptronics	www.peptronics.co.il	2004	4
Pharmony		2004	6
QuantomiX	www.quantomix.com	2001	25
Sol-Gel Technologies	www.sol-gel.com	1997	22
SoluBest	www.solubest.com	2001	23

2.2 Leading corporations with commercial involvement in Nanotechnology

Company Name	Website
Ahava	www.ahava.com
BioPigment	www.biopigment.com
Dead Sea Bromide Works	www.salt.co.il
Carmel Olefins	www.carmel-olefins.co.il
Elta	www.elta-iai.com
Kafrit	www.kafrit.com
Makhteshim	www.main.co.il
Nilit	www.nilit.com
Rafael	www.rafael.co.il
Scitex vision	www.scitexvision.com
Soreq	www.soreq.gov.il
Teva	www.tevapharm.com

2.3 Products & Technology Information

Products Life Cycle Index:

[A] - Pre revenues **[B]** - Beta sites **[C]** - Revenue stage **[D]**- Growing commercial revenues

A.H.T.

Products & Technology:

Advanced Heating Technologies Ltd. (AHT) specializes in the development of technologies and applications in the fields of heating and fusion. The company has established third level companies to develop business opportunities in the area of heating and is a subsidiary of AMT Ltd. AHT has developed technologies related to amorphous and nanocrystalline materials through which materials are transformed into a solid state using thermal shock while still maintaining their non-crystalline structure.

The process results in materials with superior magnetic, electrical, mechanical and chemical properties. AHT's technology can be applied to under-carpet heating elements, space heaters, fans, electric kettles, and similar devices.

Products Life Cycle: B

Applications & Target Market:

Heating and fusion.

ApNano Materials

Products & Technology:

NanoLub®, the world's first commercial nanotechnology-based solid lubricant. NanoLub® particles have a unique structure of nested spheres that lubricate by rolling like miniature ball bearings. It reduces friction and wear significantly better than conventional lubricants and extends the ability of moving parts to operate under much harsher conditions than possible with conventional lubricants. The benefits of using NanoLub® are that it: saves energy, decreases maintenance costs, lowers operating expenses, minimizes capital expenditures, and reduces pollution. NanoLub is used to improve the performance of oils and greases, anti-friction coatings, self-lubricating parts. NanoLub® is a green, environmentally friendly material. In this respect it is a 'must-to-have' product since presently used anti-friction additives are hazardous and thus are being phased out of use in Europe, the US and Japan in response to governmental restrictions. NanoLub is positioned in the market as not only a safe but also a superior performing alternative. Thus we have the right product to enter the market at the right time.

Products Life Cycle: A

Applications & Target Market:

The target markets for NanoLub® include: maintenance free systems, aerospace, heavy equipment, the semiconductor industry, power generating equipment and wind turbines, construction vehicles and heavy trucks, agricultural equipment, mining and manufacturing machinery, the automotive industry, and biomedical devices like artificial joints.

Based on extensive independent verification of NanoLub®'s strong performance, ApNano has made excellent progress in marketing/business development with large companies involved in lubricants or additives. Several of these companies have already provided us with Memorandums of Understanding and Conditional Purchase Orders.

B.G. Polymers A.C.A

Products & Technology:

Water based Acrylic copolymers.

Products Life Cycle: D

Applications & Target Market:

Chemical Industry, Tech - Textile, Non woven.

Biostrx

Products & Technology:

Biostrx is a structural proteomics company that develops tools and technologies to enable fast crystallization of membrane proteins and a wide number of other biological macromolecules. Biostrx's approach allows the purification and the formation of 3D crystals of membrane proteins, that constitute the majority of targets for novel drugs, but which have resisted large scale crystallization efforts until now. Biostrx's technology is based on the assisted crystallization of the target proteins on modular scaffolds of defined geometry (called SMSs), which bind to the protein of interest with very high affinity.

Products Life Cycle: A

Applications & Target Market:

Tools and technologies that form crystallization of a wide number of biological macromolecules - proteomics.

BlueBird Optical Mems

Products & Technology:

BlueBird is a nano-technology company in the field of nano-particles for the pharmaceuticals market.

Products Life Cycle: A

Applications & Target Market:

Lab-on-a-Chip, sensors.

Cerel Ceramic Technologies

Products & Technology:

Cerel develops production technology and design tools for Functional Electronic Packages (FEP), using Electrophoretic Deposition (EPD) process. Electrophoretic Deposition (EPD) is a method for deposition of electrically charged solid particles held in a liquid suspension under the influence of an applied electric field. EPD can be used to deposit laminated and graded microstructures on shaped or patterned substrates. Cerel has extended this technology to the deposition of fine components with predetermined physical, electrical or chemical properties. Cerel has demonstrated EPD viability for industrial applications where EPD has a clear leading edge over current competitive technologies.

Products Life Cycle: B

Applications & Target Market:

Components.

Cima NanoTech (NanoPowders Industries (NPI))

Products & Technology:

Cima NanoTech develops, manufactures and markets precious and base metal powders, as pure metals or special alloy powders, for a variety of industries. NanoPowders is addressing the needs of the nano materials market. NPI focuses on the advanced materials industry and has identified four primary markets: electronics, medical, batteries, and industrial catalysts, each of which offers the company significant potential for revenue growth. NanoPowders' product line includes over 50 different formulations based on precious and non-precious metals and alloys, such as silver, palladium, silver/palladium, silver/aluminum, nickel, copper, and silver/copper. The company's powders are produced by a patented chemical 1/8 metallurgical technology, a process that differs from other techniques used to produce metal powders production.

Products Life Cycle: C

Applications & Target Market:

Electronics, medical, batteries, and industrial catalysts.

Dexcel Pharma

Products & Technology:

Dexcel Pharma develops pharmaceuticals and technologies for controlled drug delivery. The company's technologies include: Time-Controlled Delivery System (TCDS), Oral tablet or capsule formulations that can target a drug to specific parts of the gastrointestinal tract in a time-controlled manner. The PerioChip Delivery System, a biodegradable periodontal pocket insert for the treatment and maintenance of adult periodontitis. Oral Controlled Release Patch (OCRP), A self-adhesive biodegradable oral patch, affixed to the buccal mucosa, that allows the active ingredient to be delivered in the oral cavity for a period of several hours or overnight, with the option for local or systemic mucosal absorption. Channeling Tablet Technology (CTT), a tablet formulation containing channels formed upon exposure to gastrointestinal liquids allowing controlled release of the active drug. Nanosphere Preconcentrate Technology (NPT), a lipid-based drug solution that forms nano particles upon dispersion in the stomach, resulting in improved oral bioavailability.

Products Life Cycle: D

Applications & Target Market:

Pharmaceutical.

Do- Coop Technologies

Products & Technology:

Research and diagnostics tool kits, and reagents; Generic Drug delivery platform; Generic Drug reformulation platform.

Products Life Cycle: B

Applications & Target Market:

Ligation-Neowater - Ligation Enhancer (T/A Cloning) User Guidelines
Neowater - Ligation Enhancer (Cohesive) User Guidelines
Transfection-Neowater - Transfection Enhancer User Guidelines
Neowater - (siRNA) Transfection Enhancer User Guidelines
PCR-Neowater - PCR Enhancer User Guidelines
Neowater - qPCR Enhancer User Guidelines
Multiplex PCR R&D Report

GC-Rich Fragments PCR R&D Report
Bacteria Growth
Colonial Growth R&D Report
Competent Cells
Competent Cells R&D Report
Immobilization-Biomolecule Binding And Immobilizing R&D Report
Neowater™ - ELISA Enhancer (PRE-RELEASE) User Guidelines
Enzyme Stability-Enzyme Activity And Stability R&D Report
Phage-Bacteria Interaction:
Phage-Bacteria Interaction User Guidelines
Phage-Bacteria Interaction R&D Report.

El-Mul Technologies

Products & Technology:

Field Emission Electron Sources based on proprietary MEMS + Carbon Nanotube structure, called "E-Beam On-a-Chip".

Products Life Cycle: C

Applications & Target Market:

1. Single electron beam sources for high performance analytical instruments (SEM, TEM,..)
 2. Multiple electron beam sources for high-throughput semiconductor manufacturing tools (CD/DR-SEM, NG Inspection and Lithography)
 3. True Random Number Generator for high speed encryption/decryption of sensitive communication
-

Flixel

Products & Technology:

Flixel develops Micro Electronic Mechanical Systems (MEMS) "Electronic Slide" technology targeted at Camera and Viewing devices, optical inspection systems and Projection System manufacturers. The company's flagship product, a Light Transmissive Optical Shutter Array, is based on a free moving axis allowing up to 180-degree movement of micromechanical parts. This enabling technology is densely packed with actuation electrodes and is especially suitable for optical applications.

Products Life Cycle: A

Fulcrum SP

Products & Technology:

Fulcrum SP develops a technology that stabilizes and repairs proteins and thus unlocks the enormous potential of proteins. The company discovered a new class of stable proteins known as SPs. The company's products include, the native version - SP1 that the first commercial products to be released and marketed are based on, and its recombinant version - rSP1. The technology is based on a novel class of stable proteins, SPs, which protect plant proteins against damage that occurs under stressful conditions. SPs are a new class of ATP-independent, chaperone-like proteins that are themselves exceptionally resistant to a broad range of extreme conditions. These conditions include boiling, high salt levels, denaturing reagents (guanidium hydrochloride), ionic detergents (SDS), proteolytic digestion (proteinase K, trypsin, V8), and organic solvents (acetone). The company is working on other proteins to be released in the future.

Products Life Cycle: B

Applications & Target Market

Stabilizing and repairs proteins.

InkSure

Products & Technology:

InkSure provides anti-counterfeiting and tracking solutions for impact and digital printing. The company's DA 2000 (Detection and Authentication) product is a customizable anti-counterfeit system that enables on-site authentication of variable and personalized printed data on sensitive documents, access control applications, labels, packages and products. The solution can be incorporated with overt detection methods such as holograms and Optically Variable Ink. The company's RDA 2000 (Remote Detection and Authentication) is a remote authentication system that enables to manually identify counterfeits and forgeries of valuable documents, products and brands. The company's solution enables to verify the authenticity of a document containing an embedded color mark via an invisible beam that reflects the hidden color mark from the corresponding print. The document is considered to be counterfeit if no embedded color is reflected. The company's TT&A (Tracking, Tracing and Authentication) product is an anti-counterfeit and anti-diversion system that enables to authenticate invisibly and visibly marked serial barcodes. Once the product is authenticated the information is sent to the server, via the Internet or WAP-enabled cellular phones.

Products Life Cycle: C

Applications & Target Market:

Printed security, RF security.

JP Med

Products & Technology:

JPMed is a drug delivery systems (DDS) company, specializing in developing novel delivery systems and products that are alcohol-free and devoid of harsh chemicals such as synthetic solvents. The DDS are made predominantly of natural ingredients. Safer DDS are enabling technologies for treating unmet needs in Cancer

Patients and unique medical and well being needs of elders and children. The Taste Masking Soy Vehicle Technology Products.

Products Life Cycle: A

Applications & Target Market:

Cancer.

Metal Powders Industries (MPI)

Products & Technology:

MPI develop very fine metal powders from any metal or metal alloy, fine metal powders with one or more metal shell encasing for semiconductor materials.

Products Life Cycle: A

Applications & Target Market:

Components.

MSTech

Products & Technology:

The company develops a sniffer technology for detecting explosives based on chemical sensors.

Products Life Cycle: A

Applications & Target Market:

Homeland Security.

NanoAdd

Products & Technology:

Superfine nano-cellulose powder and paste.

Products Life Cycle: A

Applications & Target Market:

Cosmetic, paint, adhesive, paper.

NanoCyte

Products & Technology:

Drug delivery technology. Advantages include:

- Immediate intra-dermis delivery
- Device-less active delivery
- Painless administration
- Avoiding large dosages and side effects
- Treatment of large skin areas
- Multipoint penetration using nanoinjectors
- Easy to use application

Products Life Cycle: A

Applications & Target Market:

Drug delivery platforms (nanocapsules, tubes etc.)

Nano-Em

Products & Technology:

Ultra Sound Proprietary Technology to create nano-emulsions and nano-dispersions.

Products Life Cycle: A

Applications & Target Market:

First Application: Water in Diesel nano-emulsion. Target Market: Operation Fleets in Western Europe.

Nanolayers

Products & Technology:

Nanolayers develops an organic thin-film technology for the enhancement of microelectronic components targeted at flat panel display and semiconductor manufacturers. The Molecular Layer Epitaxy (MLE) technology enables epitaxial (axially symmetric and synchronized) growth of organic ultra-thin-films, followed by formation of covalent bonds on the intermolecular level and wide structural manipulation on the monomolecular level. Nanolayers devices are produced at low cost, with molecular precision, and demonstrate high structural integrity with opto-electric properties. Applications include flat-panel displays (TFT-LCD and OLED) and semiconductors IC's. In an LCD application, Nanolayers enables the creation of a flexible transistor layer between 2 to 20 nanometers thick that could replace the fragile and inflexible 2 millimeter-thick LCD silicon transistor layer.

Products Life Cycle: A

Applications & Target Market:

Flat Panel display. Components manufacturers.

Nanomotion

Products & Technology:

Nanomotion develops electronic motors based on reversed Piezo-ceramic technology. Nanomotion has developed a series of electronic motors that have no moving parts and no external or intrinsic magnetic fields. Motion is achieved by oscillating ceramic elements, which are driven and controlled electronically. Nanomotion motors enable systems to surpass existing levels of accuracy by two orders of magnitude, while maintaining unlimited travel of speed and force. Nanomotion product lines include motors for E Beam environment and/or vacuum environments, including CD SEM, TEM, and Auger Microscopes, motors for precision motion, including microscope stages, inspection machines, plotters, robotics, and automation, and Application Specific Motors (ASM), including magnetic hard disk drives, optical disks drives, textile machines, cameras and automotive parts (headlights, windows, mirrors).

Products Life Cycle: C

Applications & Target Market:

Motors.

Nanonics Imaging

Products & Technology:

Nanonics manufactures test and measurement systems for the telecommunications components industry and ultra-high resolution optical microscope systems for use in research and development laboratories in all fields. The company's core technology is based on fiber optic design and manufacture, as well as nano-alignment positioning and scanning stages. Nanonics' flagship product is the NSOM/SPM-100, a confocal microscope whose mechanical design and architecture allow integration with upright and inverted optical and confocal microscopes. The system provides the full range of AFM modes of operation (contact, non-contact, intermittent-contact) and NSOM operation (both transmission and reflection imaging) without interfering with the workings of the host microscope. The full integration of conventional far-field microscopy, atomic force microscopy, near-field optical microscopy, and confocal microscopy into one system enables the correlation of information received from a sample of all these complementary techniques.

Products Life Cycle: B

Applications & Target Market:

Lens Characterization; Life Sciences; Microelectronics; Photonics and Telecommunication; Physics; Raman; Semiconductors; TFT Displays.

NanoPass

Products & Technology:

NanoPass develops a platform for drug delivery and diagnostics, based on micro-pyramid (microneedle) devices. The company's disposable micro device ('smart patch') enables the painless delivery of a wide range of pharmaceuticals as well as the withdrawal of biological samples through the skin without the need for trained personnel. Micro-devices could be used to effectively deliver compounds into the skin (vaccines and cosmeceuticals) and through the skin (large molecules for systemic delivery).

Products Life Cycle: B

Applications & Target Market:

Pharmaceutical.

Nano-Size

Products & Technology:

1. Cerium Oxide Powder (CeO₂) - high specific surface area
2. Copper Oxide Powder (CuO) - high specific surface area
3. Cerium Copper Oxide Powder (Ce-Cu-O) - high specific surface area
4. Cerium Gadolinium Oxide Powder (Ce-Gd-O) - high specific surface area
5. Nano Cerium Oxide Suspension (CeO₂)
6. Nano Silver Suspension (Ag)
7. Nano Silver Oxide Suspension (Ag₂O)

Products Life Cycle: A

Applications & Target Market:

Catalytic converter; Catalyst; SOFC (Solid Oxide Fuel Cell); CMP (Chemical Mechanical Planarization); Integrated circuits; conductive inks; Anti-bacterial agent.

NeuroSurvival Technologies

Products & Technology:

NST has developed the ApoSense™ technology - a set of proprietary compounds with demonstrated ability to identify, bind and accumulate within apoptotic (dying) cells in-vivo. The selective targeting to apoptotic cells is based on the "Interfacial Nanoswitch™" concept, whereby a switch component in the molecule is activated at the apoptotic cell interface, allowing binding and accumulation in the apoptotic cell.

Products Life Cycle: A

Applications & Target Market:

As the apoptosis process is a fundamental biological process associated with numerous medical conditions, the ApoSense technology addresses a very large market of unmet clinical need across a range of molecular imaging and therapeutic applications.

Nicast

Products & Technology:

Nicast develops a solution for artificial veins, which is based on ultra-thin, ultra-dense fabric that replaces human tissue.

Products Life Cycle: B

Applications & Target Market:

Human tissue replacement, surgery.

Nuace

Products & Technology:

NuAce develops a platform of enabling technology, including advantageous tools that improve the efficiency of various steps in the drug discovery process. NuAce develops tools to enhance drugs discovery by evolving new biopolymers with desired functions. The novel biopolymers may originate specific, stable and potent drugs and drug leads, as well as nano-devices for molecular recognition in DNA and protein chips.

Products Life Cycle: A

Applications & Target Market:

Bio-sensors.

NutraLease

Products & Technology:

Nano sized self assembled structured liquids - concentrates consisting of food grade surfactanats, co - surfactants and co solvents, to enable solubilization of low soluble or insoluble compounds in water and /or oil.

Products Life Cycle: B

Applications & Target Market:

Nano-sized Self-assembled Structured Condensed Liquids (NSSCL).

OSM-DAN

Products & Technology:

The company develops fabrication of nanostructured, isotopically modulated Si/Ge-based materials, as basic elements for a Nuclear Spin Quantum Computer (NSQC).

Products Life Cycle: A

Applications & Target Market:

Communication RAM memory components, hard discs, chips and semiconductor manufacturers.

Peptronics

Products & Technology:

Peptronics specializes in electronic peptide technology. Peptronics solution is based on peptide synthesis processes, inspired by nature's effective production and screening of proteins, and realized by an approach to building electronically active molecular chains. The technology combines peptide chemistry in a well-defined sequence to produce organic materials with the optical and electronic properties essential for molecular electronics. Peptronics develops specialized materials with a broad array of optical and electrical properties. The company's initial target is OLEDs for displays.

Products Life Cycle: A

Applications & Target Market:

LED displays, proteins to manufacture new organic semiconductors - called electronic peptides.

Pharmony

Products & Technology:

Pharmony delivers a technology that aims to solve the problem of antibiotic resistance, developing a new type of non-resistant antimicrobials. The technology is based on rational drug design, combining the idea of mimicking structure and functions of natural antimicrobial peptides with vast material design possibilities offered by nanotechnology and molecular self-assembly.

Products Life Cycle: A

Applications & Target Market:

Non-resistant antimicrobials.

QuantomiX

Products & Technology:

QuantomiX introduces the QX line of capsules, which enable imaging of wet samples with scanning electron microscopes (SEM). Based on its proprietary WETSEM™ technology, the capsules allow imaging and analysis of fully hydrated samples such as cells, tissue biopsies, food, nanoparticles and ink, in their native environment.

Products Life Cycle: B

Applications & Target Market :

Particle imaging and analysis; Experimental biology (subcellular organelles, cytoskeleton and motility, cell contacts, receptor distribution, extracellular matrix); EDS (energy dispersive spectroscopy); Clinical diagnosis: Histopathology, cytology, oncology.

Sol-Gel Technologies

Products & Technology:

Sol-Gel Technologies (SGT) develops encapsulated active ingredients for applications in the pharmaceutical, cosmetic, oral care and food additive global markets. The company's technologies include: 1. Doping, allows for the inclusion of materials within organic molecules in a continuous porous silica glass network, mainly used for entrapping a small number of molecules within a stable formulation. Applications include preparations of catalysts for chemical reactions or preparation of detection agents in analytical reactions. 2. Microencapsulation, a process where high concentrations of active ingredients can be incorporated within sol-gel matrices. Delivery, a technology where active ingredients can be released slowly, over time, enables the delivery of high concentrations of active ingredients to target sites at optimal conditions. The company's product UV-Pearls, allows for the encapsulation of FDA approved UV-filters in inert, transparent cosmetically acceptable glass micro-spheres.

Products Life Cycle: B

Applications & Target Market:

UV "pearls" for reducing skin damages caused by sunscreens, Acne medication, dyes & Colors.

SoluBest

Products & Technology:

Internal pipeline: SoluAzi (improved oral Azithromycin antibiotic), SoluClari (improved Clarithromycin antibiotic IV (intravenous), Solultra (improved Itraconazole antifungal), SoluSA (improved Salicylic Acid for topical multi-applications).

Products Life Cycle: A

Applications & Target Market:

Anti-infectives; Central Nervous System; Anti-cancer.

2.4 Commercial Cooperation

Company Name	Cooperation with strategic company	Type of cooperation
A.H.T.	A.M.T	
ApNano Materials	Volkswagen, BP/Castrol, Kluber, and Hatco, to name a few, are all evaluating our nanomaterials in their various products. In addition, our material has received recognition by being chosen as the sole nanomaterial upon which a prestigious pan-European project has been established that will be funded by the EU. Other projects using our material are being funded by public agencies and governmental bodies in Israel, Europe, and Canada. We have signed a Memorandum of Understanding with a global oil company and received Conditional Purchase Orders and Letters of Intent from other major players and end-users. This has culminated in a booked demand of more than 2,000 tons per year of NanoLub. We have also entered into several additional Beta-site test programs with key companies.	In light of strong indications of future demand, NanoMaterials plans to build a semi-commercial pilot plant during the next 12 months. The plant is planned to have a capacity of 150 kilograms/day. In order to meet the anticipated growing demand for NanoLub®, NanoMaterials plans to enter negotiations with a chemical industry company to outsource the building of a full scale commercial plant. NanoMaterials will maintain operation of the semi-commercial plant for producing high-end and custom product derivatives of NanoLub® and plans to somewhat increase its semi-commercial production capacity.
Biostrx	Rad-Ramot	
Cima NanoTech (NanoPowders Industries (NPI))	Toda Kogyo	Joint Venture
Dexcel Pharma	DEXXON	Acquired by Dexxon and operates as its subsidiary.
Do- Coop Technologies		Partnering: Partnering with Diagnostics and Pharma companies for next generation products. Distribution: Building distribution channels for Neowater Kit concept for the research market. End users: Free materials and support till a prove of concept.
EI-Mul Technologies	Confidential	Joint R&D, Purchasing Agreement
Ink Sure	Sun Chemicals, Merck, Centro Grafico, Isbak, MTM	
Nanolayers	Intel	
Nanomotion	Johnson Electric	
Nanonics Imaging	Agilent, Renishaw, Minus K® Technology	
NanoPass	GlaxoSmithKline	
Nano-Size		Commercial
NeuroSurvival Technologies	In Process	In Process

Company Name	Cooperation with strategic company	Type of cooperation
Nuace	Weizmann Institute	
NutraLease	Shemen Industries	
OSM-DAN	Telecommunication Systems Institute, Greece Technische Universiteit Delft, Netherlands Rad data communications, Israel Metalink, Israel Hellenic Telecommunications Organizations in Greece France Telecom, France Bar Ilan University	
Peptronics	IBM Intel	
Pharmony	Solubest	
QuantomiX		Product Testing and joint venture
SoluBest	Teva, Ahava, BTG, Estee Lauder (USA), Dermworx (USA)	Teva, BTG, Estee Lauder Feasibility Studies on their Products; Ahava collaboration, early human consumer studies accomplished; Dermworx-Co-Venture Equity Partnership for proprietary nanodrug dermatological products.

2.5 Finance

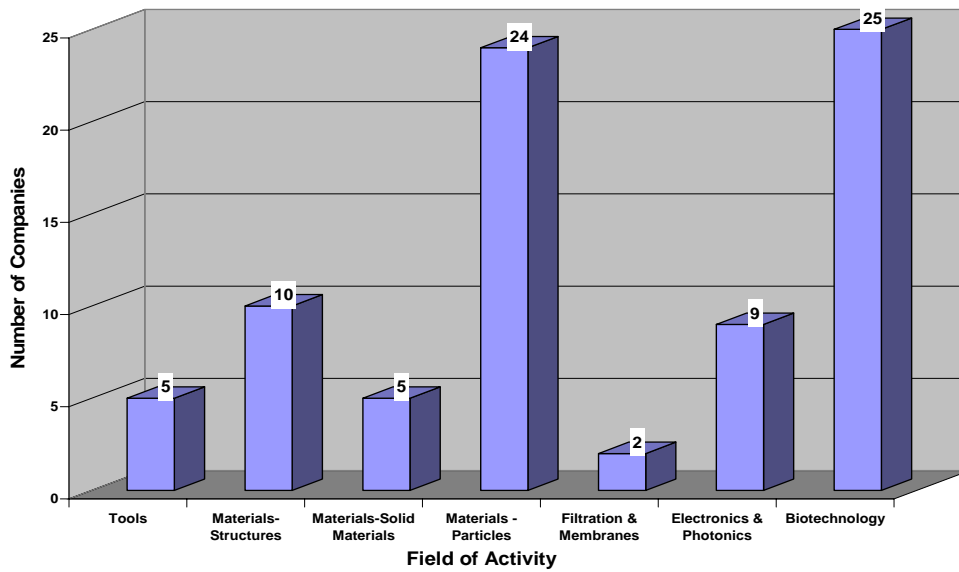
Company Name	Investors	Aggregated amount (\$M)	Sales 2004	Sales 2005
A.H.T.	A.M.T			
ApNano Materials	Newton Technology, European investors	9		
B.G. Polymers A.C.A				\$12 Million
Biostrx	Rad Biomed Incubator	0.7		
BlueBird Optical Mems	OzOptics	0.5		
Cerel Ceramic Technologies	OphirTech (Ophir Holdings Ltd.), Pamot VC Fund, Vertex III Venture Fund Ltd, Clal Industries & Investments Ltd.	4.5		
Cima NanoTech (NanoPowders Industries (NPI))	Capital Fund, European Venture Partners, Millennium Materials Funds, Sunrise Securities Corp. Merger between NanoPowders Industries Ltd. and Cima Nano Tech Inc. (June 2003).	3		
Dexcel Pharma	Dexxon	40 - Acquisition by Dexxon		
Do - Coop Technologies			\$137,000	\$300,000
EI-Mul Technologies	Cheifetz Holdings, Ltd.		\$1.4 Million	\$1.8 Million
Flixel	Avix, Yozma			
Fulcrum SP		1		
Ink Sure	Public Traded company	7	\$950,000	\$1.4 Million
Nano-Em	Private	0.5		
Nanolayers	Millenium, Intel Capital, Yissum	1.5		
Nanomotion	Clal Electronics Industries Ltd, Marathon Venture Capital Fund Ltd, Mofet Venture Capital Fund	15 (20 Acquisition)	\$4 Million	
Nanonics Imaging	Inventech, Yissum	2.5		
NanoPass	Ofer Brothers Hi-Tech Ltd.	5		
NeuroSurvival Technologies	Bargal Development, Heartwood limited, Federman Holdings, Clal Biotechnology, Konras, Israeli Phoenix, Technorov, J&J Development Corp., Docor International BV, Pontifax GP			

Company Name	Investors	Aggregated amount (\$M)	Sales 2004	Sales 2005
Nicast	Infinity, TechnoPlus Ventures	2.5		
NutraLease	Adumim Food Ingredients Ltd, Founders (Garti & Aserin), Yissum, ATI (Incubator company), Peeless Holdings Ltd. (Australia), Ben Grezes (USA).			
OSM-DAN	Grants	0.4		
Peptronics	Private	0.5		
QuantomiX	Pitango VC, Vitalife VC, Evergreen VC	12.5		
Sol-Gel Technologies	Challenge Funds-Etgar, Evergreen Partners Ltd., Feuchtwanger Energy Ventures, Jesselson's Funds, Millennium Materials Funds	6		
SoluBest	Alplex B.V. (Dutch), Hershman Holdings LLC (US) Private Investors, & Office of Chief Scientist of Israel	2.5		

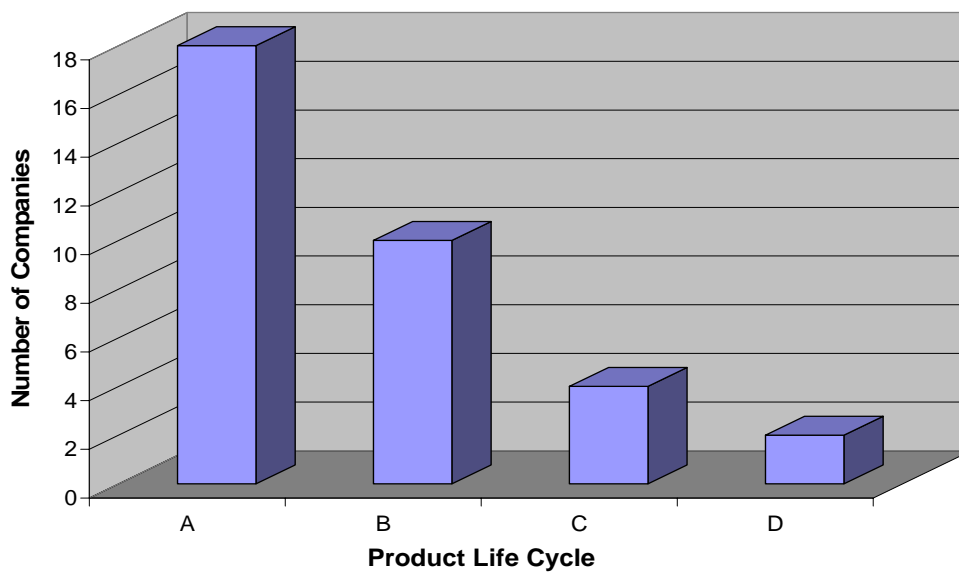
2.6 Additional Information

In addition to the filled questionnaires we have collected general market information from follow up phone calls with leading companies in the field, d&a's Hi-Tech company database and from other public source information. The graphs below summarize additional information that we have processed from the survey results.

1. Companies by Field of Activity



2. Companies by Product Life Cycle



[A] - Pre revenues **[B]** - Beta sites **[C]** - Revenue stage **[D]**- Growing commercial revenues

Section 3: Appendices

Appendix A: INNI letter to researchers and companies



Board of Directors
Dr. Dan Maydan, Chair
Dr. Giora Shalgi
Dr. Moshe Goldberg
Prof. Yoseph Imry
Prof. Joshua Jortner
Israel Makov
Dan Vilenski

Israeli Nanotechnology Survey

Nano Technology is one of the national priorities for the future economic growth of Israel. There are many activities in Nano Technology within the Israeli academia and industry. Many are supported by the government through the INNI and others. These activities are growing and gaining international support and recognition.

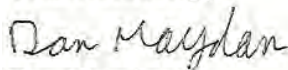
INNI, in collaboration with Dolev & Abramovitch (D&A), is initiating a special market survey of nano technology activities in Israel which will include:

- Venture capital and institutional investors
- Government agencies
- Foundations and funds
- Corporate
- Academic institutes

The results of the survey will be distributed to various institutes and industries in Israel and internationally. The purpose is to draw funding and collaboration from within and outside of Israel to the Nano Technology industry in Israel and to emphasize the knowledge and expertise that already exists.

I would appreciate your collaboration and support of the D&A effort, all in a timely manner.

Yours sincerely,



Dan Maydan

Chairman Israeli National Nanotechnology Initiative (INNI)

26th April, 2005

Appendix B: Researchers questionnaire

Israeli Nanotechnology Survey

In order to promote Israeli academic research in Nanotechnology, a comprehensive research survey is now being conducted. Your research has been chosen to be included in the Israeli Nanotechnology survey.

You can send this from by e-mail to: michal@dainfo.com or by fax to: 03-612-1897.

Research Information	
Researcher name :	
Institute:	
<input type="checkbox"/> Bar-Ilan University <input type="checkbox"/> Ben-Gurion University <input type="checkbox"/> Haifa University <input type="checkbox"/> Hebrew University <input type="checkbox"/> Technion <input type="checkbox"/> Tel-Aviv University <input type="checkbox"/> Weizmann <input type="checkbox"/> Other _____	
Faculty:	
<input type="checkbox"/> Biology <input type="checkbox"/> Biotechnology <input type="checkbox"/> Chemical Engineering <input type="checkbox"/> Chemistry <input type="checkbox"/> Electrical Engineering <input type="checkbox"/> Medicine <input type="checkbox"/> Mechanical Engineering <input type="checkbox"/> Materials Engineering <input type="checkbox"/> Physics <input type="checkbox"/> Other _____	

General Information	
Address:	Phone: +972-
	Fax: +972-
Contact Person:	E-mail:
Website:	Starting year:

Field of activity (please mark "x" in the relevant box)

• Materials	• Tools	• Biotechnology	• Electronics & Photonics	• Filtration & Membranes
<input type="checkbox"/> Particles <ul style="list-style-type: none"> <input type="checkbox"/> Calcium Carbonate <input type="checkbox"/> Catalysts <input type="checkbox"/> Ceramics & Oxides <input type="checkbox"/> Composites <input type="checkbox"/> Dendrimers <input type="checkbox"/> Lubricants <input type="checkbox"/> Metals <input type="checkbox"/> Polymers <input type="checkbox"/> Sol-gel <input type="checkbox"/> Solid Materials <ul style="list-style-type: none"> <input type="checkbox"/> Compound <input type="checkbox"/> Films & Coatings <input type="checkbox"/> Porous <input type="checkbox"/> Structures <ul style="list-style-type: none"> <input type="checkbox"/> Carbon Nanotubes <input type="checkbox"/> Fibers & Tubes <input type="checkbox"/> Fullerenes <input type="checkbox"/> Nanocapsules <input type="checkbox"/> Nanocrystalline <input type="checkbox"/> Nanowires 	<input type="checkbox"/> Electrical Test & Measurement <ul style="list-style-type: none"> <input type="checkbox"/> Metrology <input type="checkbox"/> Imaging <input type="checkbox"/> Positioning <input type="checkbox"/> Surface Analysis <input type="checkbox"/> Optical Test & Measurement <input type="checkbox"/> Self Assembly <input type="checkbox"/> Software	<input type="checkbox"/> Disease Treatment <ul style="list-style-type: none"> <input type="checkbox"/> Antimicrobial Agents <input type="checkbox"/> Detection & Analysis <input type="checkbox"/> Genomics, Proteomics & Glycomics <input type="checkbox"/> Reagents <input type="checkbox"/> Tools <ul style="list-style-type: none"> <input type="checkbox"/> Analysis & Diagnostics <input type="checkbox"/> Biochips & Sensors <input type="checkbox"/> Drug Delivery <input type="checkbox"/> Imaging 	<input type="checkbox"/> Components <ul style="list-style-type: none"> <input type="checkbox"/> Electronic <input type="checkbox"/> Mechanic <input type="checkbox"/> Photonic <input type="checkbox"/> Lithography & Inspection <input type="checkbox"/> MEMS <input type="checkbox"/> Quantum Computing <input type="checkbox"/> Quantum Dots	<input type="checkbox"/> Desalination <input type="checkbox"/> Water Purification

[T] +972-3-6130576 [F] +972-3-6121897 [A] P.O.B. 3665, Ramat Gan 52136 Israel [W] www.dainfo.com

Research Information (Cont.)
Number of researchers in the program:
Basic research or Application research (Technology):
Potential of the research - Target market:
Level of research completion: <input type="checkbox"/> Preliminary studies <input type="checkbox"/> Prototype <input type="checkbox"/> Testing <input type="checkbox"/> Commercial <input type="checkbox"/> Other_____
Other Information you would like to add:

Finance & Research Cooperation	
Financial source of the research:	
Project 1 : Amount raised (US \$): <input type="checkbox"/> less than 500,000 <input type="checkbox"/> 1 - 5 Million <input type="checkbox"/> 500,000 - 1 Million <input type="checkbox"/> more than 5 Million	Project 2 : Amount raised (US \$): <input type="checkbox"/> less than 500,000 <input type="checkbox"/> 1 - 5 Million <input type="checkbox"/> 500,000 - 1 Million <input type="checkbox"/> more than 5 Million
Project 3 : Amount raised (US \$): <input type="checkbox"/> less than 500,000 <input type="checkbox"/> 1 - 5 Million <input type="checkbox"/> 500,000 - 1 Million <input type="checkbox"/> more than 5 Million	Project 4 : Amount raised (US \$): <input type="checkbox"/> less than 500,000 <input type="checkbox"/> 1 - 5 Million <input type="checkbox"/> 500,000 - 1 Million <input type="checkbox"/> more than 5 Million
Cooperation with other Universities:	
Type of cooperation:	
With whom:	
International cooperation:	
Type of cooperation:	
With whom:	
Are you looking for partners to cooperate with?	

Appendix C: Companies questionnaire

Israeli Nanotechnology Survey

In order to promote Israeli industry development in Nanotechnology, a first-of-its-kind research survey is now being conducted. Your company has been chosen for inclusion in the Israeli Nanotechnology survey.

You can send this from by e-mail to: michal@dainfo.com or by fax to: 03-612-1897.

General information	
Company name :	
Founded:	Number of employees:
Address:	Phone: +972-
	Fax: +972-
Contact Person:	Position:
Website:	E-mail:

Finance	
Company life cycle:	
<input type="checkbox"/> [A] Pre revenues <input type="checkbox"/> [B] Beta sites initial revenues <input type="checkbox"/> [C] Revenue stage <input type="checkbox"/> [D] Growing in commercial revenues <input type="checkbox"/> [Pr] Private company <input type="checkbox"/> [Pu] Public company	
Investors :	
Financial results (US \$)	
Sales (2004):	Expected Sales (2005):

Field of activity (please mark "x" in the relevant box)

• Materials	• Tools	• Biotechnology	• Electronics & Photonics	• Filtration & Membranes
<input type="checkbox"/> Particles <ul style="list-style-type: none"> <input type="checkbox"/> Calcium Carbonate <input type="checkbox"/> Catalysts <input type="checkbox"/> Ceramics & Oxides <input type="checkbox"/> Composites <input type="checkbox"/> Dendrimers <input type="checkbox"/> Lubricants <input type="checkbox"/> Metals <input type="checkbox"/> Polymers <input type="checkbox"/> Sol-gel <input type="checkbox"/> Solid Materials <ul style="list-style-type: none"> <input type="checkbox"/> Compound <input type="checkbox"/> Films & Coatings <input type="checkbox"/> Porous <input type="checkbox"/> Structures <ul style="list-style-type: none"> <input type="checkbox"/> Carbon Nanotubes <input type="checkbox"/> Fibers & Tubes <input type="checkbox"/> Fullerenes <input type="checkbox"/> Nanocapsules <input type="checkbox"/> Nanocrystalline <input type="checkbox"/> Nanowires 	<input type="checkbox"/> Electrical Test & Measurement <ul style="list-style-type: none"> <input type="checkbox"/> Metrology <input type="checkbox"/> Imaging <input type="checkbox"/> Positioning <input type="checkbox"/> Surface Analysis <input type="checkbox"/> Optical Test & Measurement <ul style="list-style-type: none"> <input type="checkbox"/> Self Assembly <input type="checkbox"/> Software 	<input type="checkbox"/> Disease Treatment <ul style="list-style-type: none"> <input type="checkbox"/> Antimicrobial Agents <input type="checkbox"/> Detection & Analysis <input type="checkbox"/> Genomics, Proteomics & Glycomics <ul style="list-style-type: none"> <input type="checkbox"/> Reagents <input type="checkbox"/> Tools <ul style="list-style-type: none"> <input type="checkbox"/> Analysis & Diagnostics <input type="checkbox"/> Biochips & Sensors <input type="checkbox"/> Drug Delivery <input type="checkbox"/> Imaging 	<input type="checkbox"/> Components <ul style="list-style-type: none"> <input type="checkbox"/> Electronic <input type="checkbox"/> Mechanic <input type="checkbox"/> Photonic <input type="checkbox"/> Lithography & Inspection <ul style="list-style-type: none"> <input type="checkbox"/> MEMS <input type="checkbox"/> Quantum Computing <input type="checkbox"/> Quantum Dots 	<input type="checkbox"/> Desalination <ul style="list-style-type: none"> <input type="checkbox"/> Water Purification

Products and Market
Cooperation with strategic company: Type of cooperation: With whom:
Products:
Applications:
Target Market:
Other Information you would like to add: