

## Curriculum Vitae

**Boris Rubinsky,**

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**Born 3.14.1948, Timisoara, Romania**

### Education

B.Sc., M.E. Technion, Haifa, Israel, 1971  
 M.Sc., M.E. Technion, Haifa, Israel, 1977  
 Ph.D., M.E. Massachusetts Institute of Technology, 1981

### Professional Academic Experience

**Google Scholar**– h index – 83

1980-1984 Assistant Professor, University of California Berkeley, USA  
 1984-1989 Associate Professor, University of California Berkeley, USA  
 1987-1988 Fogarty Senior International Fellow (NIH) University of Cambridge, UK  
 1989 - present Professor, University of California Berkeley, USA  
 1995- 1996 Lady Davis Visiting Professor, Technion, Israel  
 1997- 2000 Chancellor's Professor, University of California Berkeley, USA  
 2001 - 2008 Arnold and Barbara Silverman Distinguished Professor of Bioengineering, University of California Berkeley, USA  
 2007 - 2009 Director and Founder Bioengineering Program Hebrew University of Jerusalem, Israel  
 2008 - present Professor of the Graduate School, University of California Berkeley, USA  
 2019 – 2021 Distinguished Visiting Scholar, Hong Kong University, Hong Kong

### Professional Industrial Experience

1971 – 1976 Technical Officer, Israeli Army,

### Awards and Honors

1979 – 1980 Whitaker Health Sciences and Technology Fund Fellow (MIT) (1979-1980)  
 1984 American Roentgen Ray Society, Executive Council Award for "*Ultrasonic Monitoring of Hepatic Cryosurgery*,"  
 1985 ASHRAE Certificate of Appreciation for "*Contributions to Educational Excellence*"  
 1986 Roscoe E. Miller Award, Society of Gastrointestinal Radiologists  
 1987 Honorary Mention, North American Radiology Society  
 1987-8 Fogarty Senior International Fellowship Award, National Institute of Health  
 1989 Larson Memorial Award from the American Society of Mechanical Engineers for "*outstanding performance within ten to twenty years after graduation*"  
 1994 Fellow ASME (American Society of Mechanical Engineers),  
 1994 Certificate of Merit, (*for developing MRI monitored Cryosurgery*), Radiological Soc. of North America, 1994  
 1994 Best paper Award JSME (Japan Society for Mechanical Engineering)  
 1995 Japan Society for the Promotion of Science (JSPS) Fellowship  
 1995-7 President "American College of Cryosurgery"  
 1995-6 Lady Davis Visiting Professor, Technion, Israel  
 1996 Fellow AAAS (American Association for the Advancement of Science)

1996	ALCOA Foundation Award for Advancements in Science
1996	Heat Transfer Memorial Award, (ASME)
1997	The Hawkins Memorial Lecture in Heat Transfer, Purdue University, USA.
1996-2000	Chancellor's Professor, University of California at Berkeley
2000	Fellow AIMBE (American Institute of Medical and Biological Engineers)
2000	World-wide coverage by CNN, ABC, CBS, Nature Biotech, New York Times, etc. for the "creation of the world's first "bionic chip","
2001	Honorary citation, centurial major contributions in health sciences, U.C.Berkeley,
2001-2008	Arnold and Barbara Silverman Distinguished Professor of Biomedical Engineering
2002	R&D 100 Award, for developing "one of the 100 most technologically significant new product of the year", <i>R&amp;D magazine</i> ( <a href="http://www.rdmag.com/rd100">www.rdmag.com/rd100</a> )
2003 -2005	Sackler Fellow in Bioengineering , Tel Aviv University
2003	Extensive report and coverage by <i>Nature</i> , <i>Science Today</i> , <i>CBS</i> , <i>Wired News</i> etc. for the "groundbreaking work of cell-based toxicity screening and detection" <a href="http://www.nature.com/nsu/030609/030609-19.html">http://www.nature.com/nsu/030609/030609-19.html</a>
2003	Elected, "Technology R&D Stars of the Year", <i>Industry Week</i> , 2003 <a href="http://www.industryweek.com/CurrentArticles/asp/articles.asp?ArticleId=1528">http://www.industryweek.com/CurrentArticles/asp/articles.asp?ArticleId=1528</a>
2004	Invention honored as one of 'The Future of Health', <i>The NextFest 2004</i> ( <a href="http://www.nextfest.net">www.nextfest.net</a> )
2005	Member Board of Directors "International Society of Cryosurgery"
2007	Gold Award - International Society of Cryosurgery Award
2007	Irreversible electroporation invention was chosen as a Technology of the Year by NASA. ( <a href="http://www.techbriefs.com/content/view/2472/36/1/2/">http://www.techbriefs.com/content/view/2472/36/1/2/</a> )
2008	Antoni Ivorra, Charlotte Daniels, Boris Rubinsky - First Prize 'Big Idea' competition. CITRIS UC Berkeley.
2009	ICI Distinguished Lecture, University of Alberta, Edmonton, Canada.
2013	ASME Heat Transfer Division 75 years Anniversary Medal
2015	Doctor Honoris Causa, Universitatea "Dunerea de Jos", Galati. Romania
2016	Doctor Honoris Causa. Building Research Institute, Bucharest, Romania
2017	Doctor Honoris Causa Universitatea Politehnica Bucharest, Romania
2017	Honorary Member, Romanian Academy of Technical Sciences
2017	Medal, Romanian Academy of Technical Sciences.
2018	William Mong Distinguished Lecture, The University of Hong Kong

### Supervised Students Awards

- 1999 -American Society of Cryosurgery – Best student paper award to John Bischof
- 2002 ASME – Bioengineering division – Best PhD Paper Award, to Yong Huang
- 2003 ASME – Bioengineering division – Honorary mention, 2003 to Jessica Preciado
- 2003 International Engineering Consortium William Everitt Award for Engineering Excellence. Kishan Gupta
- 2003 International Engineering Consortium William Everitt Award for Engineering Excellence. Candice Tsay
- 2009 First place Big Ideas competition, "Cognitive watch" Charlotte Danniels
- 2019 Second place Big Ideas competition "isochoric cryopreservation" MSc capstone group. Gideon Ukpai (PhD), Matt-Powell Palm (PhD)

- 2020 – MEng Alumni Award for the Most Innovative Project “3D Cryoprinting” MSc students group: Alex Wolcott [BIOE], Martin Banet-Rivet [ME], Pablo Amor [ME], Ruobin Liu [ME]
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### Selected Honorary lectures

- Keynote speaker, VIII International Heat Transfer Conference (1986)
- Keynote speaker, XVIII International Congress of Refrigeration (1991)
- Keynote lecture, Japan Society for Mechanical Engineering Centennial Meeting, Tokyo (1997)
- Mechanical Engineering Distinguished Lecture Series, University of Minnesota, 1998
- Keynote lecture 5<sup>th</sup> ASME/JSME Thermal Engineering Joint Conference, San Diego, (1999)
- Distinguished lecture - University of Huston, 2000
- Keynote lecture - *Frontiers of Life; XII Recontres de Blois*, 2000
- Keynote lecture – Gordon Conference – Bioelectrochemistry, Oxford, 2000
- Keynote speaker – International Society for Cryobiology, Beijing, 2004
- Plenary Lecture, 14<sup>th</sup> Ann. Symp. on Interventional Radiology, New York, 2006
- Plenary Lecture – 14<sup>th</sup> World Congress of Cryosurgery, Beijing, 2007
- Scientific Board – 1<sup>st</sup> International Electroporation Meeting, Slovenia, 2015







**Professional Affiliations:** American Society of Mechanical Engineers (ASME) (Fellow), Society for Cryobiology, American College of Cryosurgery (President Emeritus), American Association for the Advancement of Science (AAAS) (Fellow), Society for Bioelectrochemistry., International Society of Cryosurgery.

### Start-ups









- 1987-1993 Co-Founder **Cryomedical Sciences**. The company manufactures and sells cryosurgical equipment for imaging monitored minimally invasive treatment of cancer. It was established on the basis of my patent. During my involvement in the company it became a NASDAQ company, valued at \$220 million.
- 1992- present Co-Founder **A/F Protein**. The company produces and sells antifreeze proteins. It was established on the basis of my patent. <http://afprotein.net/company.htm>
- 1992- present **AquaBounty** is a wholly owned spin-off from **A/F Protein** and has become the first company in the world to produce a transgenic animal for food. It is a London Stock Exchange and a NASDAQ company. <https://aquabounty.com/>
- 1998–present Major shareholder **Spectros**. The company manufactures and sells biomedical devices that employ light to recognize tissue as a safety feature in surgery. The product of the company is based on a patent I co-invented. The company has merged with Jawbone on September 2015. <http://www.spectros.com/home.html>  
<https://jawbone.com/>

- 1997-1999 Founding minor partner in "**American Medical Procedures**". Company provides medical services on an ambulatory basis, was purchased on a stock for stock exchange by **Endocare**. <http://www.endocare.com/>
- 2000 Co-Founder "**Excellin Life Sciences**". A company in the field of biological micro devices. Based on a patent in which I am the co-inventor. The company failed.
- 2003-2008 Co-Founder "**Oncobionic**" a company in the field of tissue electroporation. Based on a patent in which I am the co-inventor. Sold to AngioDynamics 2008 for \$25 million. My technology is commercialized as the NanoKnife  
<http://www.angiodynamics.com/>
- 2006 - present My patent was licensed by "**Zeltique**" a company that became public in 2011.  
<http://www.coolsculpting.com/about-zeltiq/>
- 2011 - present Co-Founder "**Cerebrotech**"- a company in the field of internal bleeding detection. Based on a patent in which I am the co-inventor.  
<http://www.cerebrotechmedical.com//>
- 2013 – present Co-Founder **RM2** – a company in the field of wound treatment, based on a patent in which I am co-inventor.
- 2014– present Co-Founder **InterScience**, A Swiss based company in the field of electroporation. Based on a patent in which I am co-inventor.
- 2016 – present Co-Founded **Cryolyse**, an Australian company in the field of arrhythmia treatment.
- 2016 – present Co-Founder **RS3D** - a company in the field of 3D printing for medical and food applications.
- 2019-present CoFounder **Ecryo** – a company incorporated in Hong Kong with factory in Tienjin, China for distribution in China and East Asia.

## ISSUED Patents

PAT. NO.	Titl e
1	<a href="#">10,154,873</a>  <a href="#">Methods, systems, and apparatuses for delivery of electrolysis products</a>
2	<a href="#">10,143,512</a>  <a href="#">Controlled irreversible electroporation</a>
3	<a href="#">10,117,701</a>  <a href="#">Tissue ablation with irreversible electroporation</a>
4	<a href="#">10,010,666</a>  <a href="#">Balloon catheter method for reducing restenosis via irreversible electroporation</a>
5	<a href="#">9,005,189</a>  <a href="#">Tissue ablation with irreversible electroporation</a>
6	<a href="#">8,835,166</a>  <a href="#">Extracellular matrix material created using non-thermal irreversible</a>

			<u>electroporation</u>
7	<u>8,633,033</u>	<b>T</b>	<u>Volumetric induction phase shift detection system for determining tissue water content properties</u>
8	<u>8,603,087</u>	<b>T</b>	<u>Methods and systems for treating restenosis using electroporation</u>
9	<u>8,361,391</u>	<b>T</b>	<u>Volumetric induction phase shift detection system for determining tissue water content properties</u>
10	<u>8,348,921</u>	<b>T</b>	<u>Gels with predetermined conductivity used in electroporation of tissue</u>
11	<u>8,298,222</u>	<b>T</b>	<u>Electroporation to deliver chemotherapeutics and enhance tumor regression</u>
12	<u>8,282,631</u>	<b>T</b>	<u>Tissue ablation with irreversible electroporation</u>
13	<u>8,162,918</u>	<b>T</b>	<u>Gels with predetermined conductivity used in electroporation of tissue</u>
14	<u>8,114,070</u>	<b>T</b>	<u>Methods and systems for treating BPH using electroporation</u>
15	<u>8,101,421</u>	<b>T</b>	<u>Volumetric induction phase shift detection system for determining tissue water content properties</u>
16	<u>8,048,067</u>	<b>T</b>	<u>Tissue ablation with irreversible electroporation</u>
17	<u>7,955,827</u>	<b>T</b>	<u>Controlled electroporation and mass transfer across cell membranes</u>
18	<u>7,951,582</u>	<b>T</b>	<u>Systems and methods for analyzing and manipulating biological samples</u>
19	<u>7,910,374</u>	<b>T</b>	<u>Volumetric induction phase shift detection system for determining tissue water content properties</u>
20	<u>7,718,409</u>	<b>T</b>	<u>Controlled electroporation and mass transfer across cell membranes</u>
21	<u>7,674,249</u>	<b>T</b>	<u>Gels with predetermined conductivity used in electroporation of tissue</u>
22	<u>7,638,341</u>	<b>T</b>	<u>Volumetric induction phase shift detection system for determining tissue water content properties</u>
23	<u>7,053,063</u>	<b>T</b>	<u>Controlled electroporation and mass transfer across cell membranes in tissue</u>
24	<u>6,927,049</u>	<b>T</b>	<u>Cell viability detection using electrical measurements</u>
25	<u>6,725,087</u>	<b>T</b>	<u>Method and apparatus for remote imaging of biological tissue by electrical impedance tomography through a communications network</u>
26	<u>6,594,518</u>	<b>T</b>	<u>Device and method for classification of tissue</u>
27	<u>6,562,604</u>	<b>T</b>	<u>Controlled electroporation and mass transfer across cell membranes</u>
28	<u>6,482,619</u>	<b>T</b>	<u>Cell/tissue analysis via controlled electroporation</u>
29	<u>6,403,348</u>	<b>T</b>	<u>Controlled electroporation and mass transfer across cell membranes</u>
30	<u>6,387,671</u>	<b>T</b>	<u>Electrical impedance tomography to control electroporation</u>
31	<u>6,300,108</u>	<b>T</b>	<u>Controlled electroporation and mass transfer across cell membranes</u>
32	<u>6,041,787</u>	<b>T</b>	<u>Use of cryoprotective agent compounds during cryosurgery</u>
33	<u>6,032,675</u>	<b>T</b>	<u>Freezing method for controlled removal of fatty tissue by liposuction</u>
34	<u>5,987,346</u>	<b>T</b>	<u>Device and method for classification of tissue</u>
35	<u>5,752,519</u>	<b>T</b>	<u>Device and method for detection, localization, and characterization of inhomogeneities in turbid media</u>

36	<a href="#">5,746,210</a>		<a href="#">Device and method for detection, localization, and characterization of inhomogeneities in turbid media</a>
37	<a href="#">5,706,810</a>		<a href="#">Magnetic resonance imaging assisted cryosurgery</a>
38	<a href="#">5,674,218</a>		<a href="#">Cryosurgical instrument and system and method of cryosurgery</a>
39	<a href="#">5,654,279</a>		<a href="#">Tissue destruction in cryosurgery by use of thermal hysteresis</a>
40	<a href="#">5,433,717</a>		<a href="#">Magnetic resonance imaging assisted cryosurgery</a>
41	<a href="#">5,358,931</a>		<a href="#">Interaction of thermal hysteresis proteins with cells and cell membranes and associated applications</a>
42	<a href="#">5,334,181</a>		<a href="#">Cryosurgical system for destroying tumors by freezing</a>
43	<a href="#">4,531,373</a>		<a href="#">Directional solidification for the controlled freezing of biomaterials</a>

### Patent APPLICATIONS

	<b>PUB. APP. NO.</b>	<b>Title</b>
1	<a href="#">20180304537</a>	<a href="#">SYSTEMS, APPARATUS AND METHODS FOR CRYOGENIC 3D PRINTING</a>
2	<a href="#">20180206760</a>	<a href="#">VOLUMETRIC INDUCTION PHASE SHIFT DETECTION SYSTEM FOR DETERMINING TISSUE WATER CONTENT PROPERTIES</a>
3	<a href="#">20180193082</a>	<a href="#">METHODS, SYSTEMS, AND APPARATUSES FOR TISSUE ABLATION USING PULSE SHAPE DESIGNS</a>
4	<a href="#">20180064364</a>	<a href="#">CONTINUOUS AUTOREGULATION SYSTEM</a>
5	<a href="#">20170303991</a>	<a href="#">Monitoring Electrolysis</a>
6	<a href="#">20170231524</a>	<a href="#">VOLUMETRIC INDUCTION PHASE SHIFT DETECTION SYSTEM FOR DETERMINING TISSUE WATER CONTENT PROPERTIES</a>
7	<a href="#">20160296269</a>	<a href="#">METHODS, SYSTEMS, AND APPARATUSES FOR TISSUE ABLATION USING ELECTROLYSIS AND PERMEABILIZATION</a>
8	<a href="#">20160287867</a>	<a href="#">METHODS, SYSTEMS, AND APPARATUSES FOR DELIVERY OF ELECTROLYSIS PRODUCTS</a>
9	<a href="#">20160287313</a>	<a href="#">CONTROLLED IRREVERSIBLE ELECTROPORATION</a>
10	<a href="#">20160213922</a>	<a href="#">SYSTEMS AND METHODS FOR DELIVERING PULSED ELECTRIC FIELDS TO SKIN TISSUE</a>
11	<a href="#">20160183840</a>	<a href="#">Volumetric Induction Phase Shift Detection System for Determining Tissue Water Content Properties</a>
12	<a href="#">20160007879</a>	<a href="#">MULTIFREQUENCY SIGNAL PROCESSING CLASSIFIERS FOR DETERMINING A TISSUE CONDITION</a>
13	<a href="#">20150374292</a>	<a href="#">DETECTION AND ANALYSIS OF SPATIALLY VARYING FLUID LEVELS USING MAGNETIC SIGNALS</a>
14	<a href="#">20150201996</a>	<a href="#">ELECTROPORATION CONTROLLED WITH REAL TIME IMAGING</a>

- 15 [20150173824](#) [TISSUE ABLATION WITH IRREVERSIBLE ELECTROPORATION](#)
- 16 [20150159191](#) [SYSTEMS AND METHODS FOR ANALYZING AND](#)  
[MANIPULATING BIOLOGICAL SAMPLES](#)
- 17 [20150094549](#) [Volumetric Induction Phase Shift Detection System for Determining](#)  
[Tissue Water Content Properties](#)
- 18 [20140309579](#) [BALLOON CATHETER METHOD FOR REDUCING RESTENOSIS](#)  
[VIA IRREVERSIBLE ELECTROPORATION](#)
- 19 [20140176158](#) [Volumetric Induction Phase Shift Detection System for Determining](#)  
[Tissue Water Content Properties](#)
- 20 [20140163551](#) [IRREVERSIBLE ELECTROPORATION DEVICE AND METHOD](#)  
[FOR ATTENUATING NEOINTIMAL FORMATION](#)
- 21 [20140088578](#) [CRYOELECTRIC SYSTEMS AND METHODS FOR TREATMENT](#)  
[OF BIOLOGICAL MATTER](#)
- 22 [20130345779](#) [TWO DIMENSIONAL AND ONE DIMENSIONAL FIELD](#)  
[ELECTROPORATION](#)
- 23 [20130202766](#) [Composition, Methods and Devices for Reduction of Cells in a Volume](#)  
[of Matter Using Low Voltage High Electric Field \(LVHEF\) Electrical](#)  
[Energy](#)
- 24 [20130197425](#) [CURRENT CAGE FOR REDUCTION OF A NON-TARGET TISSUE](#)  
[EXPOSURE TO ELECTRIC FIELDS IN ELECTROPORATION](#)  
[BASED TREATMENT](#)
- 25 [20130196441](#) [ELECTROPORATION ELECTRODE CONFIGURATION AND](#)  
[METHODS](#)
- 26 [20130187666](#) [VOLUMETRIC INDUCTION PHASE SHIFT DETECTION SYSTEM](#)  
[FOR DETERMINING TISSUE WATER CONTENT PROPERTIES](#)
- 27 [20120277741](#) [TISSUE ABLATION WITH IRREVERSIBLE ELECTROPORATION](#)
- 28 [20120226218](#) [EXTRACELLULAR MATRIX MATERIAL CREATED USING NON-](#)  
[THERMAL IRREVERSIBLE ELECTROPORATION](#)
- 29 [20120179091](#) [GELS WITH PREDETERMINED CONDUCTIVITY USED IN](#)  
[ELECTROPORATION OF TISSUE](#)
- 30 [20120146621](#) [VOLUMETRIC INDUCTION PHASE SHIFT DETECTION SYSTEM](#)  
[FOR DETERMINING TISSUE WATER CONTENT PROPERTIES](#)
- 31 [20120071874](#) [TISSUE ABLATION WITH IRREVERSIBLE ELECTROPORATION](#)
- 32 [20120071872](#) [Systems for Treating Tissue Sites Using Electroporation](#)
- 33 [20120034131](#) [APPARATUS, SYSTEM AND METHOD FOR PREVENTING](#)  
[BIOLOGICAL CONTAMINATION TO MATERIALS DURING](#)  
[STORAGE USING PULSED ELECTRICAL ENERGY](#)
- 34 [20110217730](#) [SYSTEMS AND METHODS FOR ANALYZING AND](#)  
[MANIPULATING BIOLOGICAL SAMPLES](#)
- 35 [20110193575](#) [VOLUMETRIC INDUCTION PHASE SHIFT DETECTION SYSTEM](#)  
[FOR DETERMINING TISSUE WATER CONTENT PROPERTIES](#)
- 36 [20110118732](#) [CONTROLLED IRREVERSIBLE ELECTROPORATION](#)



- 37 [20110040204 NEUROLOGICAL STIMULATION AND ANALYSIS](#)
- 38 [20110034209 WIRELESS TECHNOLOGY AS A DATA CONDUIT IN THREE-DIMENSIONAL ULTRASONOGRAPHY](#)
- 39 [20100255795 Cellular Phone Enabled Medical Imaging System](#)
- 40 [20100196984 CONTROLLED ELECTROPORATION AND MASS TRANSFER ACROSS CELL MEMBRANES](#)
- 41 [20100160850 GELS WITH PREDETERMINED CONDUCTIVITY USED IN ELECTROPORATION OF TISSUE](#)
- 42 [20100097081 Volumetric Induction Phase Shift Detection System for Determining Tissue Water Content Properties](#)
- 43 [20090326436 ELECTROPORATION TO DELIVER CHEMOTHERAPEUTICS AND ENHANCE TUMOR REGRESSION](#)
- 44 [20090292342 Methods and Systems for Treating BPH Using Electroporation](#)
- 45 [20090248012 IRREVERSIBLE ELECTROPORATION DEVICE AND METHOD FOR ATTENUATING NEOINTIMAL](#)
- 46 [20090247933 BALLOON CATHETER METHOD FOR REDUCING RESTENOSIS VIA IRREVERSIBLE ELECTROPORATION](#)
- 47 [20090029407 Systems And Methods For Analyzing And Manipulating Biological Samples](#)
- 48 [20080269586 ELECTROPORATION TO INTERRUPT BLOOD FLOW](#)
- 49 [20080224688 Volumetric Induction Phase Shift Detection System for Determining Tissue Water Content Properties](#)
- 50 [20080214986 GELS WITH PREDETERMINED CONDUCTIVITY USED IN ELECTROPORATION OF TISSUE](#)
- 51 [20080132885 Methods for treating tissue sites using electroporation](#)
- 52 [20080132884 Systems for treating tissue sites using electroporation](#)
- 53 [20080021371 Methods and systems for treating restenosis using electroporation](#)
- 54 [20080015571 Methods and systems for treating tumors using electroporation](#)
- 55 [20080007275 Volumetric induction phase shift detection system for determining tissue water content properties](#)
- 56 [20070156135 System and methods for treating atrial fibrillation using electroporation](#)
- 57 [20070043345 Tissue ablation with irreversible electroporation](#)
- 58 [20070042337 Isochoric method and device for reducing the probability of ice nucleation during preservation of biological matter at subzero centigrade temperatures](#)
- 59 [20060293731 Methods and systems for treating tumors using electroporation](#)
- 60 [20060293730 Methods and systems for treating restenosis sites using electroporation](#)
- 61 [20060293725 Methods and systems for treating fatty tissue sites using electroporation](#)
- 62 [20060293713 Methods and systems for treating BPH using electroporation](#)
- 63 [20060264752 Electroporation controlled with real time imaging](#)



- 64 [20060121610 Controlled electroporation and mass transfer across cell membranes](#)
- 65 [20050282284 Controlled electroporation and mass transfer across cell membranes in tissue](#)
- 66 [20050171574 Electroporation to interrupt blood flow](#)
- 67 [20050171523 Irreversible electroporation to control bleeding](#)
- 68 [20030194808 Controlled electroporation and mass transfer across cell membranes](#)
- 69 [20030166181 Controlled electroporation and mass transfer across cell membranes](#)
- 70 [20020137121 Cell viability detection using electrical measurements](#)
- 71 [20010051366 Controlled electroporation and mass transfer across cell membranes](#)
- 72 [20010046706 Controlled electroporation and mass transfer across cell membranes](#)

## REFEREED PUBLICATIONS

- 1) B. Rubinsky and A. Shitzer, "Analysis of a Stefan-Like Problem in a Biological Tissue Around a Cryosurgical Probe," ASME Trans., *J. of Heat Transfer*, **98**, pp. 514-519, August 1976.
- 2) B. Rubinsky and A. Shitzer, "Analytic Solutions of the Heat Equation Involving a Moving Boundary with Application to the Change of Phase Problem (the Inverse Stefan Problem)," ASME Trans., *J. of Heat Transfer*, **100**, pp. 300-304, May 1978.
- 3) B. Rubinsky and E.G. Cravalho, "The Determination of the Thermal History in a One-Dimensional Freezing System by a Perturbation Method," ASME Trans., *J. of Heat Transfer*, pp. 326-330, May 1979.
- 4) B. Rubinsky and E.G. Cravalho, "Analysis for the temperature Distribution During the Thawing of a Frozen Biological Organ," *A.I.Ch.E. Symposium Series*, **75**, 81-88, 1979 (Proc.).
- 5) B. Rubinsky and E.G. Cravalho, "An Analytical Prediction of the Local Concentration of Cryophylactic Agents in Perfused Organs," *Cryobiology*, **16**, pp. 362-371, August 1979.
- 6) B. Rubinsky, E.G. Cravalho and B. Mikic, "Thermal Stresses in Frozen Organs," *Cryobiology*, **17**, pp. 66-74, 1980.
- 7) B. Rubinsky and E.G. Cravalho, "A Finite Element Method for the Solution of One-Dimensional Phase Change Problems," *Int. J. of Heat and Mass Transfer*, **24**, pp. 1987-1989, 1981.
- 8) B. Rubinsky, "Thermal Stresses During Solidification Processes," ASME Trans., *J. of Heat Transfer*, **104**, pp. 196-199, 1982.
- 9) B. Rubinsky and E.G. Cravalho, "Transient Mass Transfer Processes During the Perfusion of a Biological Organ with a Cryophylactic Agent Solution," *Cryobiology*, **19**, pp. 70-82, 1982.
- 10) B. Rubinsky, "Solidification of a Conglomerate of Particles," ASME Trans., *J. of Heat Transfer*, **104**, pp. 193-196, 1982.
- 11) K.K. Kellogg, B. Rubinsky and R. Greif, "The Effect of Orientation on the Heat Transfer from a Flat Surface in an Air Fluidized Bed," *Int. J. Heat and Mass Transfer*, **26**, No. 1, pp. 151-153, 1983.
- 12) J.F. Raymond and B. Rubinsky, "A Numerical Study of Thawing Process of a Frozen Coal Particle," ASME Trans., *J. of Heat Transfer*, **105**, pp. 197-200, 1983.

- 13) B. Rubinsky, "Solidification Processes in Saline Solutions," *J. of Crystal Growth*, **62**, pp. 513-522, August, 1983.
- 14) J.J. Neff and B. Rubinsky, "The Effect of a Magnetic Field on the Heat Transfer Characteristics of an Air Fluidized Bed of Ferromagnetic Particles," *Int. J. of Heat and Mass Transfer*, **26**, No. 12, pp. 1185-1189, 1983.
- 15) B. Rubinsky and G.L. Sterns, "Experimental Comparison of Heat Transfer Data with Flow Visualization of a Flat Surface in a Fluidized Bed," *ASME Trans., J. of Heat Transfer*, **105**, No. 4, pp. 809-816, November, 1983.
- 16) J.M. Chen and B. Rubinsky, "Morphological Stability Analysis on a Solid-Liquid Interface During Solidification of Binary Alloys" ASME Paper #83-HT-24, 1983.
- 17) B. Rubinsky and E.G. Cravalho, "An Analytical Method to Evaluate Cooling Rates During Cryopreservation Protocols for Organs," *Cryobiology*, **21**, pp. 303-320, 1984.
- 18) G. Onik, C. Cooper, H.I. Goldenberg, A.A. Moss, B. Rubinsky, and M. Christianson, "Ultrasonic Characteristics of Frozen Liver," *Cryobiology*, **21**, pp. 321-328, 1984.
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#### **Cryosurgery**

<http://www.diagnosticimaging.com/specialedition/profile-onik.jhtml>

<http://www.pbs.org/wgbh/nova/sciencenow/3209/05-cures.html>

<http://www.sciencedaily.com/releases/2002/05/020515074832.htm>

<http://www.bizjournals.com/sanjose/stories/2002/06/03/story3.html>

<http://www.transhuman.de/kryonif4.htm>

<http://www.el-mundo.es/salud/1998/297/01981.html>

[http://www.mymedcenter.com/index.cfm?pt=itemDetail&item\\_id=63815&site\\_cat\\_id=2](http://www.mymedcenter.com/index.cfm?pt=itemDetail&item_id=63815&site_cat_id=2)

#### **Organ preservation**

[http://www.exploratorium.edu/frogs/woodfrog/woodfrog\\_2.html](http://www.exploratorium.edu/frogs/woodfrog/woodfrog_2.html)

<http://www.pbs.org/wgbh/nova/sciencenow/3209/05-cures.html>

[http://news.nationalgeographic.com/news/2005/03/0301\\_050301\\_woodfrog.html](http://news.nationalgeographic.com/news/2005/03/0301_050301_woodfrog.html)

[http://www.gradewinner.com/p/articles/mi\\_m1511/is\\_n8\\_v15/ai\\_15589167](http://www.gradewinner.com/p/articles/mi_m1511/is_n8_v15/ai_15589167)

### **Bionic technology**

<http://online.sfsu.edu/~rone/GEessays/bionicchip.html>

<http://www.nature.com/nsu/030609/030609-19.html>

<http://www.sciteclibrary.ru/eng/catalog/pages/5403.html>

<http://www.wired.com/news/technology/0,1282,59217,00.html>

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<http://www.ecplanet.com/canale/salute-7/cellule-67/0/0/7705/it/ecplanet.rxd>

### **Irreversible electroporation**

<http://us.nanoknife.com/>

<http://www.nasdaq.com//aspxcontent/newsstory.aspx?selected=ANGO&symbol=ANGO&textpath=20081218%5CACQBIZ200812180630BIZWIRE%5FUSPR%5F%5F%5F%5F%5FBW5235%2Ehtm&cdtime=12%2F18%2F2008+6%3A30AM>

[http://videlectures.net/medicon07\\_rubinsky\\_teoie/](http://videlectures.net/medicon07_rubinsky_teoie/)

<http://news.moneycentral.msn.com/ticker/article.asp?Feed=BW&Date=20061017&ID=6112260&Symbol=US:ANGO>

<http://www.techbriefs.com/content/view/2472/36/1/2/>

<http://www.wcjb.com/news/7035/medical-spotlight-6-7-10-nanoknife>

<http://www.azcentral.com/arizonarepublic/local/articles/2009/08/05/20090805treatment0805.html>

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<http://www.angiodynamics.com/products/nanoknife>

<http://www.spektrum.de/alias/onkologie/mit-stromstoessen-gegen-krebs/1224868>

### **Cell phone imaging**

<http://www.nature.com/news/2009/090422/full/458959a.html>

<http://abclocal.go.com/kgo/story?section=news/health&id=6114196>

<http://youtube.com/watch?v=Epg-o9jARel&feature=user>

<http://engineeringtv.com/blogs/educational-videos/archive/2008/06/01/electrical-impedance-tomography.aspx>

[http://berkeley.edu/news/media/releases/2008/04/29\\_cellphone.shtml](http://berkeley.edu/news/media/releases/2008/04/29_cellphone.shtml)

<http://www.youtube.com/watch?v=Epg-o9jARel>

<http://www.livescience.com/technology/080430-cell-phone-medical.html>

<http://www.sciencefriday.com/newsbriefs/read/173>

[http://www.sciencenetlinks.com/sci\\_update.cfm?DocID=350](http://www.sciencenetlinks.com/sci_update.cfm?DocID=350)

[http://www.businessweek.com/technology/content/apr2008/tc20080429\\_186428.htm?campaign\\_id=rss\\_topStories](http://www.businessweek.com/technology/content/apr2008/tc20080429_186428.htm?campaign_id=rss_topStories)

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[http://www.contracostatimes.com/search/ci\\_9200403?IADID=Search-www.contracostatimes.com-www.contracostatimes.com](http://www.contracostatimes.com/search/ci_9200403?IADID=Search-www.contracostatimes.com-www.contracostatimes.com)



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<http://www.ihealthbeat.org/articles/2008/5/9/Plan-Outlines-Strategy-To-Transmit-Medical-Images-Via-Cell-Phones.aspx?topicID=61>

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[http://blogs.discovery.com/news\\_sustainable/2008/05/page/2/](http://blogs.discovery.com/news_sustainable/2008/05/page/2/)

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<http://www.afprotein.com/management.htm>

<http://www.industryweek.com/ReadArticle.aspx?ArticleID=1356>

<http://www.asme.org/honors/ms71/saa/heat.html>

<http://www.asme.org/honors/ms71/gaa/larson.html>

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### **Potato electricity**

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### **Internal bleeding for economically disadvantaged**

<http://spectrum.ieee.org/biomedical/diagnostics/wireless-technique-gives-quick-cheap-read-on-brain-injuries>

<http://www.wired.co.uk/news/archive/2013-05/15/remote-brain-trauma-detection>

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<http://www.digitaltrends.com/sports/are-sideline-brain-scanners-about-to-become-a-reality/>

### **3D printing**

[Faster 3D bioprinting? UC Berkeley researchers think freezing could be the answer](#)

3D Printing Industry

A team of scientists from UC Berkeley, California, have proposed a new 3D printing method for producing artificial tissues. Described to The Daily .

[Bioprinting with Frozen Cells: Multilayer Cryolithography for Better Cell Survival](#)

3DPrint.com

... and **Boris Rubinsky** explain how they have been able to speed up 3D printing with additional hardware and robotic arms working at rapid speed.

### [3D Printing Tissues and Organs Just Got Faster](#)

Machine Design

... is basically mush—which doesn't improve their appetite—and the problem exacerbates," says mechanical-engineering professor **Boris Rubinsky**.

### [New device paves the way to 3D-printed organs, food](#)

3D Printing Progress

... so you can't print anything big because the biological materials will deteriorate by the time you finish," said **Boris Rubinsky**, professor of mechanical .

### [New device paves the way to 3-D-printed organs, food](#)

Tech Xplore

... material is preserved, and we can control the freezing rate," said **Boris Rubinsky**, professor of mechanical engineering and co-author of the paper.

[2D stacking method could make 3D-printed organs viable](#) - New Atlas  
[Full Coverage](#)

### [How 3D printing of organs and food works](#)

Devdiscourse

... will deteriorate by the time you finish," said **Boris Rubinsky**, professor of mechanical engineering and leader of the team that designed the device.

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- 41) Y. Huang, B. Rubinsky, 'A Microfabricated Chip for the Study of Cell Electroporation', *Proceedings of ASME International Conference/ Bioengineering*, p133-135, 2000..
- 42) G Amir ,B Rubinsky M Eldar,M Scheinovitz A K Smolinsky and J Lavee.Prolonging ischemic times in rat heart transplantation ,by controlling cooling to 0 degrees. Annual meeting of the Israel Heart Society,Tel Aviv; April 2000.
- 43) G Amir ,B Rubinsky M Eldar,M Scheinovitz A K Smolinsky and J Lavee.Lowering and controlling preservation temperatures at 0 degrees C ,prolongs ischemic times and improves hemodynamic performance in rat heart transplantation.49<sup>th</sup> International Congress of the European Society for Cardiovascular Surgery ,Dresden Germany, June 2000.
- 44) Gabriel Amir, Boris Rubinsky, Liana Horowitz, Yigal Kassif, Michael Eldar, Mickey Scheinowitz, Aram K. Smolinsky and Jacob Lavee: "Subzero cryopreservation of mammalian hearts using antifreeze proteins derived from Antarctic fish and freeze tolerant insects" *Proceedings European Congress of Cardiothoracic Surgery*, Sept, 2001
- 45) G Amir ,B Rubinsky,Y, Kassif ,L Horowitz ,M Eldar,M Scheinovitz .A K Smolinsky and J Lavee. Subero cryopreservation of mammalian hearts using antifreeze proteins derived from arctic fish and freeze tolerant insects. European Association of Cardiothoracic surgery and European Society of thoracic Surgery Joint Meeting, Lisbon,Portugal ,September 2001
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- 49) Gabriel Amir, Liron Miller, Micha S Feinberg, Jacob Lavee, Aram K Smolinsky, Boris Rubinsky, Zeev Rotstein, , Smadar Cohen, Jonathan Leor, A novel small animal model to evaluate the performance of tissue engineered cardiac muscle using biograft grown in the peritoneal cavity and heterotopic heart transplantations. American Heart Congress , November 2002 , Chicago Illinois.
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- 40th Annual Meeting of the Society for Cryobiology, abstract in *Cryobiology*, vol. 47, no. 3, pp. 290-1, 2003.
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  - 55) A. Ivorra, L.M. Mir, B. Rubinsky, "Electric Field Redistribution due to Conductivity Changes during Tissue Electroporation: Experiments with a Simple Vegetal Model ", Oral presentation, World Congress 2009 on Medical Physics and Biomedical Engineering, publication: IFMBE Proceedings 25(13): 59-62, September 7-12, 2009, Munich, Germany.
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  - 58) E. Maor, A. Ivorra, B. Rubinsky, "Intravascular irreversible electroporation: Theoretical and experimental feasibility study", Oral presentation, 30th Annual International Conference of the IEEE Engineering in medicine and biology society, publication: IEEE Engineering in medicine and biology society conference proceedings (2008), v.1, pp. 2051-2054, 2008, Vancouver, British Columbia, Canada.
  - 59) A. Ivorra, L. Miller, B. Rubinsky, "Electrical impedance measurements during electroporation of rat liver and muscle", Oral presentation, XIII International Conference on Electrical Bioimpedance (ICEBI), 29-8-2007. publication: Proceedings of XIII International Conference on Electrical Bioimpedance (ICEBI), IFMBE Proceedings 17(5):130-133, 2007, Graz, Austria.
  - 60) Ivorra, B. Rubinsky, "Optimum Conductivity of Gels for Electric Field Homogenization in Tissue Electroporation Therapies", Oral presentation, IV Latin American Congress on Biomedical Engineering (CLAIB), September 24th-28th, 2007, publication: Proceedings of the IV Latin American Congress on Biomedical Engineering (CLAIB). 2007, IFMBE Proceedings 18(5): 619-622, Margarita Island, Venezuela.© 2007 Springer-Verlag Berlin HeidelbergElsevier B.V.
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- 66) [7] G. Blumrosen, N. Avisdris, R. Kupfer, and B. Rubinsky, "C-SMART: Efficient Seamless Cellular Phone Based Patient Monitoring System," *Proceedings of IEEE IREHSS 2011 : Third IEEE Workshop on Interdisciplinary Research on E-health Services and Systems*, 22-25 June 2011.
- 67)

## Graduate Students

### MSc

- 1) C.-F.Chen, "A Study for the Mass Transfer Process During the Perfusion of a Biological Organ with a Semi-Permeable Substance, M.Sc., September, 1981.
- 2) R.A. Browning, "Nuclear Lifetime Evaluation Methodology of a Control Blade," M.Sc., December, 1981, (General Electric outside student).
- 3) K.P.Kellogg, "The Effect of Orientation on the Heat Transfer from a Flat Surface in an Air Fluidized Bed," M.Sc., December, 1981.
- 4) J.F. Reynolds, "A Numerical Study of the Thawing Process of a Frozen Coal Particle," M.Sc., January, 1982.
- 5) G.L. Starnes, "The Effect of Orientation on the Heat Transfer from an Immersed Flat Surface in a Two-Dimensional Air Fluidized Bed," M.Sc., June, 1982.
- 6) L. Nguyen, "The Thawing Process of a Conglomerate Coal Particle in an Enclosure," M.Sc., June, 1982.
- 7) J. Neff, "The Effect of a Magnetic Field on the Heat Transfer Characteristics of an Air Fluidized Bed of Ferromagnetic Particles," M.S., August, 1982.
- 8) J. Chen, "Morphological Stability Analysis on a Solid-Liquid Interface," M.Sc., September, 1982.
- 9) G. Graham, "Energy Storage Using Organic Polyols," M.Sc.I., 1983.
- 10) R. Jennings, "Numerical Analysis for Temperature Distribution in Josephson Junctions," M.Sc.I., 1983.
- 11) D. Moog, "Freezing Process in Moist Coal," M.Sc.I., 1984.
- 12) J. O'Neel, "A Standard Experimental Procedure for Evaluation of Incubators," M.Sc.I., 1984.
- 13) M. Ikeda, "Experimental Study on Dendritic Solidification," M.Sc.I., 1984.
- 14) R.S. Lee, "Solid to Solid Phase Transformation Materials and Flow Visualization about a Horizontal Cylinder," M.Sc.I., 1984.
- 15) M. Chaw, "Cryomicroscopic Studies on Solidification Processes," M.Sc.I., 1985.
- 16) C. Lee, "Transcapillary Processes During the Perfusion of a Biological Organ with a Semipermeable Non-Electrolyte Solution," M.Sc.I., 1985.
- 17) F.M. Gee, "A Finite Element Code for the Solution of a New 3-D Bioheat Equation with Direct Modelling of Large Blood Vessels," M.Sc.II., 1985.
- 18) G.Y. Lee, "A Finite Element Analysis of the Stability of the Solid-Liquid Interface During Directional Solidification of a Saline Solution," M.Sc.II., 1985.
- 19) M. Smidebush, "A Finite Element Analysis of the Feeding Process for Crystal Growth by the Horizontal Bridgman Method," M.Sc.II., 1985.
- 20) C.A. Rivera, "On the Stability of the Ice-Water Interface During Directional Solidification," M.Sc.II., 1985.
- 21) K. Atagi, "Crystal Growth Modeling of a Radiatively and Conductively Participating Medium," M.Sc.II., 1987.
- 22) K. Davoudpour, "An Analytical Study on Solidification Processes in Saline Solutions," M.Sc.II., 1987.
- 23) B. Leichtung, "Finite Element Study on Plasma Arc Welding," M.Sc.II., 1987.
- 24) S.M. Haile, "Vitrification as a Viable Alternative for Freezing in the Cryopreservation of Organs," M.Sc. (Material Science), 1988.
- 25) N. Merry, "Heat Transfer in Fluidized Beds or Organic Polyols," M.Sc., 1988.
- 26) K. Eto, "Freezing Processes During Cryosurgery," M.Sc., 1989.
- 27) J. Bischof, "Freezing Processes in the Kidney," M.Sc., 1989.
- 28) P. Kwa, "Energy Storage in Fluidized Beds of Organic Polyols," M.Sc, 1990.

- 29) G. Yen "Cryosurgery in the brain". MSc, 1991 (Vice President for research "Venus" Biotech company)
- 30) G. Alvarado, "Intravascular MRI-Compatible Cryoprobe: A feasibility study, M.Sc. 1993
- 31) Oleg Ovruck " Thermoelectric Temperature Stage" MSc 1994.
- 32) Rafael Davalos, "An evolutionary-genetic approach to heat transfer analysis" MSc, 1995 (LLNL)
- 33) James Hammonds, " Evolutionary Genetics analysis of heat transfer" MSc, 1997
- 34) Titilayo Melissa Masha "The effect of surface tension on final drop diameter of spots using a contact printing pen" MSc, 1999
- 35) Mustafa Kiral "The effect of freezing on liver tissue of Rana Sylvatica (wood frog). MSc 2000.
- 36) Jose Rivera, "A business plan for distributed medical imaging system for the detection of cancer" MSc 2002
- 37) Jessica Armendariz Preciado, " Radiative properties of polar bear hair" MSc 2003
- 38) Sebastien Payen "Dynamics of Electroporation" MSc 2003-05-22
- 39) Fanny Augais " Electrical properties of Frozen tissues" M Sc 2003
- 40) Stephanie Szobota "Isochoric cryopreservation" MSc 2005
- 41) Yuval Millo "Location of Biomedical Tools in an Electric Field" MSc Hebrew University, 2007
- 42) Mohanad Shini "Multiple biopsy probe sampling enabled minimally invasive electrical impedance tomography" MSc Hebrew University, 2008
- 43) Michal Ayash "Electrical impedance tomography with a moving electrode" MSc Hebrew University, 2009
- 44) Charlotte Daniels, "Irreversible electroporation in heterogeneous tissue" UC Berkeley 2009
- 45) Marry Phillips "The use of irreversible electroporation in tissue engineering" UC Berkeley 2010
- 46) Greg Trozsak "Singularity induced electroporation" UC Berkeley 2010
- 47) Arie Meir "Cellular phone based medical imaging" Hebrew University 2010
- 48) Netanell Avisideras " Minimally obtrusive cognition analysis" Hebrew University 2011
- 49) Mats Jacob Dryer, Isochoric Cryopreservation. UC Berkeley 2015
- 50) Conley Robert Jones, Isochoric Cryopreservation. UC Berkeley, 2015
- 51) Gary Carlson, Isochoric Cryopreservation. UC Berkeley, 2015
- 52) David Fisher, Isochoric Cryopreservation. UC Berkeley, 2015
- 53) Naga Leela, Isochoric Cryopreservation. UC Berkeley, 2015

## **PhD**

- 1) Hai-Lin .S. Tsai, "A Study of Transport Phenomena and Interface Stability During Solidification of Binary Solutions," Ph.D., 1984. (Professor, University of Missouri-Roulla)
- 2) Jaisuk. Yoo, "Studies on Heat Transfer and Fluid Flow During Solidification Processes," Ph.D., 1984. (Professor and Dean, Anjo University, Korea)
- 3) John. C. Gilbert, "Ultrasonic Imaging of Cryosurgery," Ph.D., 1985.
- 4) Y.F. Hsu, "Numerical Studies on Heat Transfer and Fluid Flow During Plasma-Arc and GTA Metalwork Processes," Ph.D., 1986.

- 5) I. Kececioglu, "A Variational Deforming Finite Element Method for Computing the Propagation of Freezing Fronts in Porous Media as a Coupled Heat Fluid Flow and Species Transport Process," Ph.D., 1987.
- 6) C. Lee, "Heat and Mass Transfer Processes in Biological Organs," Ph.D., 1989. (Associate Professor, U of N Carolina at Charlotte)
- 7) J. Bischof, "The Effects of Low Temperature on Biological Materials," Ph.D. (Bioengineering), 1992. (Professor, University of Minnesota)
- 8) R. Keanini, "Numerical Studies on Heat Transfer with Phase Transformation," Ph.D., 1992. (Professor, University of N. Carolina at Charlotte)
- 9) R. Cogger, "Thermodynamics of crystal growth with antifreeze proteins and vitrification" M.Sc. 1991, PhD 1993 (Professor, University of N. Carolina at Charlotte)
- 10) M. Shannon, "Laser surface interaction" MSc, 1992, PhD, 1993 (Professor, University of Illinois at Urbana Champaign)
- 11) JS Hong, "Studies on the use of freezing for controlled destruction and preservation of tissue" PhD, 1993 (Professor and Computer Science Department Chairman, National Chi-Nan University, Taiwan)
- 12) Kurt Eto "Response of biological systems to low temperatures" PhD, 1994
- 13) Grant R. Pease "Magnetic Resonance Image-Guided Control of Cryoablation" PhD, 1995 (Research, Hewlett Packard, Corvallis Oregon)
- 14) Lars Chapsky, "Ice growth inhibition by antifreeze proteins", PhD, 1997
- 15) Kristine Tatustani, "The mechanism of freezing damage in prostate cryosurgery" PhD. 1998
- 16) Linda Diem-Tuyet Pham "Antifreeze protein modified ice crystallization in cryosurgery" PhD 1999
- 17) Kelvan Patrick Howard, "The development of a microfabricated experimental technique for the study of cellular dehydration toxicity and viability" PhD, 1999.
- 18) David Otten, "Cryosurgical imaging using visible light imaging and electrical impedance tomography- a feasibility study" PhD 2000.
- 19) Yong Huang "Micro-electroporation for Genetic Engineering" PhD 2001.
- 20) Rafael Davalos "Real Time Imaging for Molecular Medicine through Electrical Impedance Tomography of Electroporation", PhD 2002 (Assistant Professor, Virginia Tech)
- 21) Phil Tsourkas "Genetic Algorithms" PhD 2004
- 22) Ruben Diez "Fundamentals of electroporation" PhD 2005 (Assistant professor, Marquette University, Puerto Rico)
- 23) Jon Edd "Electrical impedance tomography of electroporation" PhD 2005
- 24) Gabriel Amir (Tel Aviv University) "High Subzero Cryopreservation of Harvested Hearts for Transplantation Using Thermal Hysteresis Proteins", PhD 2005
- 25) Pedro Alejandro Perez "Isochoric Cryopreservation", PhD 2006
- 26) Preciado, Jessica "The fundamentals of isochoric freezing and its role in the cryopreservation of biological materials. PhD 2007
- 27) Yair Granot "Electrical Impedance tomography of electroporation" PhD 2008
- 28) Elad Maor "Fundamental study on the effects of irreversible electroporation pulses on blood vessels with application to medical treatment", PhD UC Berkeley 2009
- 29) Alex Golberg "A Study on Electro-Chemical Phenomena In and Around Cells (Electrolysis and Electroporation), PhD Hebrew University, 2010
- 30) Greg Troszak "A theoretical analysis of singularity-induced micro-electroporation and its applications" PhD, UC Berkeley, 2011.
- 31) Shlomi Laufer "Raw Data Analysis of Electrical Impedance Spectroscopy Measurements". PhD, Hebrew University 2011.



- 32) Gaddi Blumrosen "Exploitation of Electromagnetic Radiation properties for Medical Diagnostic" Ph.D Hebrew University, 2011
- 33) Charlotte Daniels "Non-thermal Irreversible Electroporation in Heterogeneous Tissues" PhD UC Berkeley, 2011
- 34) Yossi Mandel "Pulsed electric field and electroporation in the eye", PhD Hebrew University, 2011
- 35) Marry Phillips "The Molecular Selectivity of Non-Thermal Irreversible Electroporation and Tissue Regeneration In Vivo" PhD UC Berkeley., 2012
- 36) Kener Avigail " Cellular electroporation" PhD Hebrew University, 2014
- 37) Hjouj, Mohammad "MRI of Electroporation" PhD Hebrew University, 2014
- 38) Meir, Arie " Electrolytic effects in electroporation" PhD UC Berkeley, 2015