

ALEXANDER GOLBERGEmail: agolberg@tauex.tau.ac.il

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Personal Webpage: <https://agolberg.github.io/>**ORCID ID:** <http://orcid.org/0000-0001-8782-8879>**Researcher ID:** M-9563-2017**Google Scholar:** <http://scholar.google.com/citations?user=2pPLLaEAAAJ>**EDUCATION**

2012-14	Postdoctoral Fellow, Center for Engineering in Medicine and Surgery Harvard Medical School Advisor: Martin L. Yarmush, MD, PhD
2010-11	Postdoctoral Fellow, Bioengineering and Mechanical Engineering University of California, Berkeley Advisor: Boris Rubinsky.
2010	PhD, Bioengineering. School of Engineering and Computer Science. The Hebrew University of Jerusalem Supervisor: Boris Rubinsky, Committee: Haim D. Rabinowitch and Michael Belkin
2007	BSc (cum laude), Biotechnology and Food Engineering Technion, Israel Institute of Technology

ACADEMIC POSITIONS

2024-	Full Professor, School of Mechanical Engineering. Tel Aviv University.
2024	Chair, subcommittee on school of environmental studies organizational structure.
2022-2025	Head of Department of Environmental Studies. Tel Aviv University (TAU)
2022-	Promotion committee member, School of Environment and Earth Sciences. Faculty of Exact Sciences, Tel Aviv University.
2024-2025	Head of Department of Geography and Human Environment, TAU
2021-2024	Full Professor, Porter School of Environmental and Earth Sciences, TAU
2020-2022	Head International MA program on Environmental Studies.
2019 -2021	Elected Tel Aviv University Senate member.
2018- present	Academic Head. Eco-Health Laboratory. Meir Medical Center.
2018-2021	Associate Professor, Porter School of Environmental and Earth Sciences, TAU
2017-2021, 2024-	School PhD committee member
2017-2022	Head, Master Program MA track, Porter School of Environmental and Earth Sciences
2017-2022	Joint program of Mechanical Engineering, Geophysics and Environment Engineering committee member. Undergraduate curriculum committee member.
2015-2022	Head, MS Program in Energy and Environment, Porter School of Environmental and Earth Sciences, TAU
2015-2019	Management Committee (Israel) EU Cost Action COST Action FA1406, Advancing knowledge on seaweed growth and development.
2014-2018	Assistant Professor, Porter School of Environmental and Earth Sciences, TAU
2014-2023	Visiting Scientist, Center for Engineering in Medicine and Surgery, MGH, Boston, MA
2014-2016	Management Committee (Israel) EU Cost Action TD1104, Electroporation based technologies and treatments
2014-present	Member of Working Group 4, Policy and Sustainability, The European Biofuels Technology Platform

PROFESSIONAL EXPERIENCE

2022-	Co-founder, ELSY Medical: Startup in the field of cancer diagnostics
2021-	Co-founder, Genesee Ltd: Startup in the field of seaweed protein
2020-23	Consultant, Petco Polymers. Japan.
2018	Consultant, Kampachi Worldwide Holdings, LP
2005-10	R&D Research Engineer, Life Technologies (Invitrogen, Thermo-Fischer)
2006-10	Founder, Toppik Technologies and Investments Ltd, Startup in the field of seaweeds
2000-03	Military Service, Israel Air Defense Network

AWARDS AND HONORS

2025	Presidential Visiting Faculty Fellow, Rutgers University, NJ.
2024	Plenary Lecture: Polymertec24 Conference
2018	Innovations in Wound Healing Faculty Award
2016	Pratt foundation, Food Security Conference in India Travel Award, Nov 22.
2014	Shriners Hospitals for Children Fellowship (declined due to the move to faculty at TAU)
2014	ILANIT Conference Travel Award, February 11
2014	MGH Postdoc Association Recognition Award (nominated)
2014	Robert B. Lindberg Award and Medal, America Burn Association
2013	Travel Award, Invited Speaker, Gordon Research Conference on Tissue Repair and Regeneration, June 15
2013	ISES Abraham Kogan Session Lecture Award on Renewable Energy, Israel, October 7
2012	Postdoctoral Fellowship Award from the MGH Fund for Medical Discovery, MGH
2012	Travel Award, Bio and Food Electrotechnologies, Solerno, Sept 26
2012	Green Talents in Sustainable Development Award, German Federal Ministry of Education and Research, http://www.greentalents.de/890.php
2011	Regional finalist in California, Clean Tech Open Competition, USA. Macroalgae biorefineries for sustainable food and energy production.
2010	Extensive news reporting and coverage by Nature, Reuters, Al-Jazeera, Russian 1 st and Israel news channels for the “Biological Battery Invention”
2008	Electroporation Based Technologies & Treatments, Travel Award, Ljubljana, Slovenia, Nov 9
2004-06	Dean’s Award, For Excellence in Food Engineering Studies, Technion, Israel Inst Technology
2003	HAAS Award for Excellence in Studies and Community Work, Israel and US
1997	First place, Regional Olympiad in Astronomy and Cosmic Physics, Kursk, Russia

SERVICE

2015	Guest Editor, Special Issue on Bioenergy, <i>TECHNOLOGY</i>
2013-2020	Member, Associate Editorial Board, <i>TECHNOLOGY</i>

Reviewing: Applied Energy, Renewable and Sustainable Energy reviews, Annual Reviews of Biomedical Engineering, Energy, Journal of Investigative Dermatology, Biofuels Bioproducts and Biorefinery, Energy Conversion and Management, Algal research, Scientific Reports, Biophysical J, Technology, Biotechnology and Bioengineering, Biomedical Engineering online, J. Membrane Biology, IEEE Transactions on Plasma Science, Process Biochemistry, Chemical Engineering Research Communication, J. Vascular and Interventional Radiology, Bioelectrochemistry, Cardio and Interventional Radiology, Technology in Cancer research and treatment, J. Wound Healing and Regenerative Medicine, Botanica Marina, Biomass Conversion and Biorefinery, Waste and Biomass Valorisation, BioEnergy Research, Bioelectrochemistry, Chemical Engineering Reviews, Botanica marina, Analytica Chimica Acta, Advances in Wound healing.

Conference Leadership

- **Scientific Committee.** 5th World Congress on Electroporation, Pulsed Electric Fields in Biology, Medicine, Food and Environmental Technologies. Rome. Italy. September 15-19, 2024.
- **Chair.** IIT Madras-TAU workshop on sustainability. 12 March 2024.
- **Nomination Committee.** 4th World Congress on Electroporation, Pulsed Electric Fields in Biology, Medicine, Food and Environmental Technologies. Copenhagen. Denmark. October 9-13, 2022.
- **Scientific Committee.** 4th World Congress on Electroporation, Pulsed Electric Fields in Biology, Medicine, Food and Environmental Technologies. Copenhagen. Denmark. October 9-13, 2022.
- **Scientific Committee.** VIII Latin American Conference on Biomedical Engineering and XLII National Conference on Biomedical Engineering. October 2-5, 2019, Cancún, México.
- **Scientific Committee.** 3rd World Congress on Electroporation, Pulsed Electric Fields in Biology, Medicine, Food and Environmental Technologies. Toulouse. France. September 3-6, 2019.
- **Scientific Committee.** Israel Society of Ecology and Environmental Sciences Annual Conference. Tel Aviv. 18-21 June 2019.
- **Chair:** Diving into the future. French-Israel workshop on marine biology. Tel Aviv. 1 November, 2018.
- **Scientific Committee.** 8th International Conference on Algal Biomass, Biofuels and Bioproducts. 11-13 June 2018. Seattle, WA. USA Elsevier Conference.
- **Chair.** Innovations in Bioengineering Technologies in the Service of Humanity and Society. Tel Aviv. 28 March, 2018
- **Scientific Committee.** 2nd World Congress on Electroporation, Pulsed Electric Fields in Biology, Medicine, Food and Environmental Technologies. Norfolk. VA. USA. September 24-28, 2017.
- **Scientific Committee.** 7th International Conference on Algal Biomass, Biofuels and Bioproducts. 18-21 June 2017. Miami, FL. USA Elsevier Conference.
- **Chair:** Marine Offshore Biorefinery workshop. Tel Aviv. May 24, 2017
- **Chair:** Industrial Eco-parks as Tools for Rural Area Sustainable Development. Kiryat Shmona, Israel, Oct 11, 2015
- **Session chair:** Pulsed Electric Fields and Electroporation in the Bioeconomy, 1st World Congress on Electroporation and Pulsed Electric Fields in Biology, Medicine and Food & Environmental Technologies. Portoroz, Slovenia, Sept 6, 2015
- **Topic co-leader:** Life Cycle Assessment, Industrial Ecology, Environmental Impact of Energy Systems, ECOS 2015, Pau, France June 29, 2015
- **Topic organizer:** ASME 2012 Renewable Energy.

Grant funding committees and review panel:

- PRESTIGE. France. 2015
- Israel Ministry of Science. 2019
- German-Israel Science Foundation (GIF). 2018-2019
- FONDECYT. Comisión Nacional de Investigación. Chile. 2019
- US-Israel Science Foundation (BSF). 2020.
- BARD (USA-Israel agricultural research foundation). 2021
- Ministry of Environmental Protection (Israel). 2022.
- Committee of Higher Education of Israel. 2022.
- Israel Ministry of Science. Israel-India panel for food security in the era of climate change. 2023.
- Israel Ministry of Science. FoodTech. 2023

Thesis committee: Roe Peretz (PhD committee), Yan Rosen(PhD committee), Patrick Chavel (PhD committee), Mark Polikovskiy (MSc committee), Doron Ashkenazi (MSc committee, PhD committee), Moshe Oziel (PhD committee), Rajashree Yaragal (BITS Pilani India, PhD committee), Moshit Yaskin, Technion PhD committee, Yaskin Harush, Technion PhD committee

MEMBERSHIPS:

NYACS 2011-present

ASME 2013-2022

International Society for Electroporation-Based Technologies and Treatments 2015-present

AIChE 2016-2022

Waste to Energy Consortium 2022- current. Head of Chapter in Israel

GRANT FUNDING

Good Food Institute

Golberg PI.

1/25-8/26

“Development of Suna: a seaweed based alternative to canned tuna”.

The goal of this project is to perform demineralisation, extrusion and final formulation of a tuna alternative from seaweed protein concentrate.

Role: PI, Total Funding: \$40,000

BARD US-Israel Agricultural Research and Development Fund

Zilberman/Palatnik/Hofman/ Golberg

12/24-11/27

“**Sustainable agriculture, the case of macroalgal-based circular economy**”.

The goal of the project is to assess the economics of multiple products production from macroalgae

Role: co-PI, Total funding: \$300,000

Google

Golberg PI

11/23-10/24

“**Predicting Ulva sp. biomass productivity and protein content in offshore aquaculture**”

The goal of this project is to develop large computational models to predict seaweed biomass growth and chemical composition based on environmental parameters with the goal to prove for alternative to meat proteins.

Role: PI, Total funding \$50,000

Israel Ministry of Science

Golberg PI

12/22-12/25

“**Polyhydroxyalkanoates’ (PHAs) production from organic waste using open fermentation and chemical-free separation**”

The goal of this project is to develop a process to produce biodegradable thermostable plastic from municipal organic waste.

Role: PI, Total funding \$330,000

Israel Ministry of Science

Gnaim/Liberzon/Golberg

12/22-12/25

“**Novel SCP matrix production using archaea *Haloferax mediterranei* fermentation of wasted bread**”

The goal of this project is developing a novel approach for single cell protein production for meat alternatives from archaea grown on bread waste.

Role: PI, Total funding \$330,000

Israel Electric Company

Golberg/Lishner/Platnik.

02/22-01/23

“**Hydrothermal liquefaction (HTL) of hospital waste to energy: process development, social, environmental and techno-economic impacts**”.

The goal of the project is to develop a novel, environmental process to convert hospital waste to liquid fuels.

Role: Project coordinator, PI. Total funding \$160,000

PETCO- Japan

Golberg

02/22-01/23

“**Seaweed derived bioplastic**”.

The goal of the project is developing a scalable process for PHA production from archaea and seaweeds.

Role: PI. Total funding \$100,000

Zimin Institute for better life-TAU

Golberg/Yakhini/Shalom

5/22-1/5/23

“**Device for pulsed electric field based biopsy**”

The goal of this project is to develop a new device for skin biopsy with electroporation

Role: PI. Total funding \$100,000

SPARK-TAU Golberg/Yakhini/Shalom 05/21-05/22

“Device for pulsed electric field based biopsy for diagnosis of basal cell carcinoma”

The goal of this project is to develop a new device for skin biopsy with electroporation

Role: PI. Total funding \$50,00

EuroNanoMed2021 Golberg 03/21-02/24

“Molecular biopsy with electroporation for tissue diagnosis” MATISSE.

The goal of this this multinational project (Israel, Norway, Turkey, Lithuania) to develop nanoparticles based therapies based on electroporation based biopsy and microfluidics.

Role: PI, Coordinator. Total funding: Euro 740,000

Israel Innovation Authority Kamin Golberg/Yakhini/Shalom
1/3/21-28/2/23

“Development of pulsed electric field based biopsy for diagnosis of basal cell carcinoma”

The goal of this project is to develop new methods for skin cancer diagnostics

Role: PI. Total funding \$492,000

BARD US-Israel Agricultural Research and Development Fund
Zilberman/Palatnik/Golberg 12/20- 11/23

“Macroalgae Biorefinery Supply Chain Economics”.

The goal of the project is to assess the economics of multiple products production from macroalgae

Role: co-I, Total funding: \$ 300,000

Israel Innovation Authority Kamin Raban/Golberg 09/20-08/22

“Devices and Methods for Spinal Cord Injury Therapies with Glutamate Scavenging”

The goal of this project is to develop device and microfluidic based methods for glutamate scavenging enzymes encapsulation.

Role: PI. Total funding \$258,000

Ministry of Health Golberg/Confino/Israel/Livney/Obolski 10/20-09/23

“Clinical assessment of green seaweed protein allergic potential”

The goal is to produce 10kg of green seaweed protein and test it allergenicity in a clinical trial.

Role: PI (coordinator). Total funding: \$250,000

Good Food Institute Livney/Golberg/Israel/Palatnik 07/20-06/22

“Fish meat substitute from red seaweed proteins”

The of this project is to develop extraction and extrusion processes to produce fish meat replacement with proteins extracted from the red seaweed.

Role: PI. Total funding: \$250,000

Porter Foundation Golberg 05/20-07/20

“Sulfated macroalgae polysaccharides fighting COVID-19”

The goal of this project is to screen 3 green seaweed sulfated polysaccharides against COVID-19 virus

Role: PI. Total funding: \$22,500

Ministry of Energy and Infrastructures Golberg/Kribus/Gozin 05/20-04/23

“Hydrothermal liquefaction of municipal organic waste to liquid biofuels”

The goal of this project is to develop a device, process and techno-economic analysis of hydrothermal liquefaction of organic food waste to liquid biofuels

Role: PI (coordinator). Total funding: \$250,000

TAU XIN Center Golberg/Gozin 04/19-03/21

“Production of PHA for bioplastic from macroalgae and marine organisms”

The goal of the project is to develop a process for sustainable PHA production for bioplastic from marine macroalgae

Role: PI, Total funding \$100,000

Institute for Smart Transportation

Golberg/Liberzon

04/19-03/20

“Sulphated polysaccharides from marine algae for oil consumption reduction by drag reduction in marine transport”

The goal of this project is to test if macroalgae derived polymers can reduce drag on marine vessels

Role: PI, Total funding \$38,000

TAU Breakthrough Innovative Research Grants. Fromm/Liberzon/ Golberg / Meroz 02/19-01/20

“Establishing a microfluidics ‘root-brain’ chip: towards elucidating and manipulating plant root behavior”

The goal of this project is to develop a microfluidic system and machine learning methods to understand decision making of roots.

Role: PI, Total funding \$104,000

Golberg (PI)/Yakhini

31/12/18-31/12/21

Israel Ministry of Science

“Molecular harvesting with electroporation”

The goal of this project is to develop a electroporation based process to molecules from solid tumors for diagnostics.

Role: PI (coordinator), Total funding \$330,000

Golberg (PI-ISR)/ Yarmush (PI-US)

01/10/18-31/09/22

Binational Science Foundation (BSF).

“Prevention of scars after burns with pulsed electric fields”

The goal of this project is to develop a device for scar treatment after burns with pulsed electric fields

Role: PI, total funding \$320,000.

Raymond and Beverly Sackler Fund for Convergence Research in Biomedical, Physical and Engineering Sciences

“Development of multiscale model of offshore algae farms” Golberg/Liberzon/Rubinsky 1/10/18-31/09/2019

Role: PI, total funding \$22,000

Triangle R&D TAU 59086

Golberg/Gozin

1/03/18-28/02/2019

“Dead sea halophytic bacteria for production of polyhydroxyalkanoates”

The goal of this pilot project is to isolate new PHA producing bacteria from the Dead Sea for Energy applications

Role: PI. Total funding: \$ 4,000

US-4986-17 F

Zilberman/Palatnik/Golberg

1/12/2017- 31/11/2018

BARD

“Assessing the economics of processed natural resources - the case of seaweed”.

The goal of the project is to assess the economics of multiple products production from macroalgae

Role: co-I, Total funding: \$ 100,000

TAU Gordon Center for Energy Studies

Liberzon/Golberg (PI)

1/2/2017- 31/1/2018

“Nutrients supply for intensive offshore macroalgae cultivation”.

The goal of the project is to improve the productivity of macroalgae biomass production through improving the nutrients supply.

Role: co-I, Total funding: \$ 6,000

Israel Ministry of Science

Golberg (PI)/Liveny/Israel

28/12/16-27/12/19

“Securing food supply by producing starch from marine macroalgae with pulsed electric fields”

The goal of this project is to develop a electroporation based process to extract starch from macroalgae.

Role: PI, Total funding \$300,000

Microsoft Azure Award

Golberg (PI) /Yakhini

01/10/16-02/02/18

“Parallel computing tools for chemometric analysis of tissues”.

Role: PI, total funding \$20,000.

Golberg (PI)

01/05/17-30/04/20

Israel Ministry of Agriculture.

“Development of pulsed electric field device for waste poultry dehydration and biochemical extraction”

The goal of this project is to develop a device for energy efficient dehydration and valuable chemical extraction from animal waste

Role: PI, total funding \$213,000.

Golberg (PI-ISR)/Usta/Yarmush (PI-US)

01/01/17-31/06/18

Binational Science Foundation (BSF).

“Wound disinfection with pulsed electric fields”

The goal of this project is to develop a device for burn wounds disinfection with pulsed electric fields.

Role: PI, total funding \$150,000.

Golberg (PI)

01/07/16-31/06/19

Israel Ministry of Economy. Kamin program.

“Development of pulsed electric field device for phytochemical extraction from biomass”

The goal of this project is to develop a device for macroalgae treatment with pulsed electric fields and assess the allergenic properties of this new source of proteins.

Role: PI, total funding \$362,000.

Golberg (PI)/Liveny/Israel

06/16-10/17

Israel Ministry of Health

“Extraction of functional proteins from macroalgae using non-thermal pulsed electric fields”

The goal of this project is to develop a electroporation based process to extract functional proteins from macroalgae.

Role: PI, Total funding \$40,000

Golberg (PI)/Liberzon/Israel/HaKohen

05/16-04/19

Israel Ministry of Energy and Water Resources.

“Assessment of offshore macroalgae biomass production for energy in Israel”

The overall goal is to develop a model and climate simulator device to assess the potential of offshore macroalgae biomass production to provide for renewable energy in Israel.

Role: PI, Total funding \$125,749

Golberg (PI)/Kribus/Guttman

05/16-04/19

Israel Ministry of Energy and Water Resources.

“Processes for biomass deconstruction for biofuels production”

The overall goal is to develop a new process that is based on sub-critical water hydrolysis, potentially driven with solar energy, in combination with post-treatment by enzymatic cocktails for rapid and effective raw biomass decomposition.

Role: PI, Total funding \$223,000

Golberg (PI)/Liberzon

07/15-06/18

TAU Center for Innovation in Transportation grant.

“Off-shore floating system for intensive cultivation of macroalgae for transportation biofuel production”

The overall goal is to design and prototype a system for maximum photon and nutrient transformation to macroalgae biomass offshore.

Role: PI, Total funding: \$75,000

Liberzon/Golberg (PI)

02/15- 01/2016

TAU Gordon Center for Energy Studies

“Improving macroalgae biomass for energy yields with intensive cultivation”.

The goal of the project is to improve the productivity of macroalgae biomass production through improving the photosynthesis cycles.

Role: co-PI, Total funding: \$ 12,000

85120

Yarmush (PI)

01/13-12/14

Shriners Hospitals

"Scarless Wound Healing Therapy by Irreversible Electroporation"

The overall goal is to design and prototype an irreversible electroporation device and protocols that limits wound fibroplasia and neo-angiogenesis without disrupting established vessels and matrix.

Role: Research Fellow, Total funding: \$120,000

Lian (PI)

03/14-08/14

BWH Innovation Microgrant

“Epigenetic regulation Hypertrophic Scarring and Scarless Regeneration”

The objective of this proposal was to elucidate the epigenetic regulation of the scarless skin regeneration after IRE ablation in comparison to the scarring after third degree burns.

Role: Co-investigator

Golberg (PI)

09/12-08/13

Postdoctoral Fellowship Award from the MGH Fund for Medical Discovery

“ Burn wounds disinfection with non-thermal pulsed electric fields”

The goal of this proposal was to develop instrumentation and protocols for burn wounds disinfection with irreversible electroporation.

Role: PI, total funding: \$40,000

LANGUAGES

English- Fluent.

Hebrew- Fluent

Russian- Fluent

PUBLICATIONS

Journal Papers:

- 1 **Golberg A**, Belkin M, Rubinsky B. Irreversible Electroporation for Microbial Control of Drugs in Solution. **AAPS PharmSciTech** 2009; 10 (3): 881-886.

- 2 **Golberg A**, Rubinsky B. A statistical model for multidimensional irreversible electroporation cell death in tissue. **BioMedical Engineering OnLine** 2010; 9:13.
- 3 **Golberg A**, Rabinowitch HD, Rubinsky B. Galvanic apparent internal impedance: an intrinsic tissue property. *Biochemical and Biophysical Research Communications* 2009; 389: 168-171.
- 4 **Golberg A**, Rabinowitch HD, Rubinsky B. Zn/Cu- vegetative batteries, bioelectrical characterizations and primary cost analyses. **J. Renewable Sustainable Energy**,2010 doi:10.1063/1.3427222 2010, highlighted in *Nature* 2010; 465,848.
- 5 **Golberg A**, Rubinsky B. The effect of electroporation type pulsed electric fields on DNA in aqueous solution. **Technology in Cancer Research and Treatment** 2010; 9(4):423-430.
- 6 **Golberg A**, Fischer Y, Belkin M, Rubinsky B. Intermittently Delivered Pulsed Electric Fields for Sterile Storage of Turbid Media. **IEEE Transactions on Plasma Science** 2010; 38 (11):3211-3218.
- 7 **Golberg A***, Laufer S*, Rabinowitch HD, Rubinsky B. In vivo non thermal irreversible electroporation impact on rat liver galvanic apparent internal resistance. **Phys. Med. Biol.** 2011; 56: 951-963. * Equal contribution.
- 8 **Golberg A**, Rae CS, Rubinsky B. Listeria monocytogenes cell wall constituents charge effect on irreversible electroporation threshold. **Biochimica et Biophysica Acta-Biomembranes** 2012; 1818(3):689-94.
- 9 **Golberg A**, Rubinsky B. A numerical study towards electroporation based treatment planning considering muscle contraction. **Technology in Cancer Research and Treatment**, 2012; 11(2):189-201.
- 10 Francois F, Rubinsky L, **Golberg A**, Rubinsky B. Variable Electric Fields for High Throughput Electroporation Protocol Design. **Biotechnology and Bioengineering** 2012; 109(8): 2168-2171. **Editor Spotlight Key Article**
- 11 Linshiz G, **Golberg A**, Konry T, Hillson N. Fusion of Biology, Computer Science and Engineering – in the quest to efficient and successful Synthetic Biology. **Perspectives in Biology and Medicine** 2012; 55(4) 503-520.
- 12 **Golberg A**, Bei M, Sheridan R, Yarmush M.L. Regeneration and control of human fibroblast cell density by intermittently delivered pulsed electric fields. **Biotechnology and Bioengineering**, 2013; 110(6):1759-68.
- 13 **Golberg A**. Analytical model of local distribution of chemicals in tissues with first order rate metabolism kinetics. **Chemical Engineering Communications** 2013; 201(1): 102-119.
- 14 **Golberg A**, Yarmush ML. Nonthermal Irreversible electroporation: Fundamental, Applications, Challenges. **IEEE Transactions on Biomedical Engineering** 2013; 60 (3):707-14.
- 15 **Golberg A**, Yarmush ML, Konry T. Pico-liter immunosorbent droplet microfluidic platform for point-of-care tetanus diagnostics. **Microchimica Acta** 2013; 180 (9-10): 855-860.
- 16 **Golberg A**. The Impact of Pulsed Electric Fields on Cells and Biomolecules, a Comment on ‘Lightning-triggered electroporation and electrofusion as possible contributors to natural horizontal gene transfer by Tadej Kotnik’. **Physics of Live Reviews** 2013; 10 (3): 382-383.
- 17 **Golberg A**, Broelsch GF, Bohr S, Mihm MC Jr, Austen WG Jr, Albadawi H, Watkins MT, Yarmush, ML. Non-Thermal, Pulsed Electric Field Cell Ablation: A Novel Tool for Regenerative Medicine and Scarless Skin Regeneration. **Technology** 2013; 1: 1-8.
- 18 **Golberg A**, Vitkin E, Linshiz G, Ahmad-Khan S, Hillson NJ, Yakhini Z, Yarmush ML. Proposed Design of Distributed Marine Biorefineries: Thermodynamics, Technology, and Sustainability Implications for Developing economies. **Biofuels, Bioproducts & Biorefining** 2014; 8(1): 67-82.
- 19 Yarmush ML, **Golberg A**, Sersa G, Kotnik T, Miklavcic D. Electroporation Based Technologies for Medicine: Principles, Applications, and Challenges. **Annual Reviews of Biomedical Engineering** 2014, 16: 295-320.
- 20 Deipolyi, AR, **Golberg A**, Yarmush ML, Arellano RS, Oklu R. Irreversible electroporation: evolution of a laboratory technique to interventional oncology. **Diagnostic and Interventional Radiology** 2014; 20(2):147-54.
- 21 Konry T, **Golberg A**, Yarmush ML. Live individual cell functional phenotyping in droplet reactor. **Scientific Reports** 2014, 3, Article number 3179 doi:10.1038/srep03179.

- 22 **Golberg A***, Linshiz G*, Kravets I, Stawski N, Hillson N, Yarmush ML, Marks RS, Konry, T. Cloud-enabled microscopy and droplet microfluidic platform for specific detection of *Escherichia coli* in water. **PLoS ONE** 2014 9(1): e86341, * Equal contributions.
- 23 **Golberg A**, Broelsch GF, Vecchio D, Khan S, Hamblin MR, Austen WGJr, Sheridan RL, Yarmush ML. Eradication of multidrug-resistant *A. baumannii* in burn wounds by antiseptic pulsed electric fields. **Technology** 2014. 2(2):153-160.
- 24 **Golberg A**, Broelsch GF, Vecchio D, Khan S, Hamblin MR, Austen WGJr, Sheridan RL, Yarmush ML. Pulsed electric fields for burn wound disinfection. **Journal of Burn Care and Research** 2015. 36(1), 7-13. **Robert B. Lindberg Award** from American Burn Association.
- 25 Quinn KP, **Golberg A**, Broelsch GF, Khan S, Villiger M, Bouma B, Austen WGJr, Mihm MC, Yarmush ML, Georgakoudi I. An automated image processing method to quantify of collagen fiber organization within cutaneous scar tissue. **Experimental Dermatology** 2015; 24(1),78-80.
- 26 Cohen N, Sabhachandani P, **Golberg A**, Konry, T. Approaching near real-time biosensing: Microfluidic microsphere based biosensor for real-time analyte detection. **Biosensors and Bioelectronics** 2015; 66(15), 454-460.
- 27 **Golberg A**, Bruinsma B, Uygun B, Yarmush ML. Tissue heterogeneity in structure and conductivity contribute to cell survival during irreversible electroporation ablation by “electric field sinks”. **Scientific Reports** 2015, 8485, doi:10.1038/srep08485.
- 28 **Golberg A**. Long-term *Listeria monocytogenes* proliferation control in milk by intermittently delivered pulsed electric fields, implications for food security in the low-income countries. **Technology** 2015. 3(1):1-6.
- 29 **Golberg A**, Khan S, Belov V, Quinn KP, Albadawi H, Broelsch GF, Watkins MT, Georgakoudi I, Papisov M, Mihm MCJr, Austen WGJr, Yarmush ML. Skin rejuvenation with pulsed electric fields. **Scientific Reports**. 2015; 12;5:10187. doi: 10.1038/srep10187.
- 30 **Golberg A**, Liberzon A. Modeling of smart mixing regimes to improve marine biorefinery productivity and energy efficiency. **Algal Research** 2015. 11:28-32.
- 31 **Golberg A**. Environmental exergonomics for sustainable design and analysis of energy systems. **Energy** 2015; 88, 314-321.
- 32 Vitkin E, **Golberg A***, Yakhini Z*, BioLEGO — a web-based application for biorefinery design and evaluation of serial biomass fermentation. **Technology** 2015; 3(2, 3): 1-10. *Equal Senior Author.
- 33 **Golberg A**. Bioenergy—when where and how? **Technology** 2015. 3(2,3):79. Editor Preface
- 34 Bohr S, Patel SJ, Vasko R, **Golberg A**, Shen K, Berthiaume F, Yarmush, ML. The Role of CHI3L1 (Chitinase-3-Like-1) in the Pathogenesis of Infections in Burns in a Mouse Model. **PlosOne**, 2015. 10(11): e0140440.
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- 137 Kashyap, M., Ghosh, S., Levkov, Livney Y, Alvaro I, **Golberg A**. High-Voltage pulsed electric field and pH shift process for protein and solute release from *Gracilaria* sp. red edible seaweed. **Food and Bioprocess Technology**. 2024. <https://doi.org/10.1007/s11947-024-03432-x>
- 138 Vitkin, E; Wise, J; Berl, A; Shir-az, O; Kravtsov, V; Yakhini, Z; Shalom, A; **Golberg, A**. Deciphering dermatological distinctions: Cornulin as a discriminant biomarker between Basal Cell Carcinoma and Squamous Cell Carcinoma detected through E-biopsy and Machine Learning. **Experimental Dermatology**. 2024. <https://doi.org/10.1111/exd.15124>
- 139 Vitkin, E; Wise, J; Berl, A; Shir-az, O; Gabay, B, Singh, A, Kravtsov, V; Yakhini, Z; Shalom, A; **Golberg, A**. Differential expression analysis of cutaneous squamous cell carcinoma and basal cell carcinoma proteomic profiles sampled with e-biopsy. **Journal of Investigative Dermatology-Innovations**. 2024.4(6):100304.
- 140 Steinbruch E, Kashyap M, Chemodanov A, Levkov K, Golberg A. Continuous Pulsed Electric Field Processing for Intensification of Aqueous Extraction of Protein from Fresh Green Seaweed *Ulva* sp. Biomass. **Food Hydrocolloids**. 2024. 157:110477.
- 141 Mann D, Bar-Shai N, Levkov K, Gabay B, Vitkin E, Nyska A, Yarmush M, Shalom A, **Golberg A**. Treating scars after burns with pulsed electric fields in the rat model. **Journal of Burn Care & Research**. 2024. Accepted.
- 142 Unis R, Gnaim R, Kashyap M, Shamis O, Gnayem N, Gozin M, Liberzon A, Gnaim G, **Golberg A**. Bioconversion of bread waste into high-quality proteins and biopolymers by fermentation of archaea *Haloferax mediterranei*. **Frontiers in Microbiology-Food Microbiology**. 2024. Accepted.
- 143 Castel, N, Vitkin E, Shabo S, Berl A, Wise J, Duenyas A, Cohen E, **Golberg A**, Shalom A. Proteome expression signatures differ between orbital and subcutaneous abdominal adipose tissues. **Life**. 2024. Accepted.
- 144 Gelashvili R, Chemodanov A, Obolski U, Yakhini Z, **Golberg A**. Predictive Modeling of *Ulva* sp. Growth and Chemical Composition in an Outdoor Air-Mixed Bioreactor Under Natural Environmental Conditions: A Machine Learning Approach. *Algal Research* 2025. Accepted.
- 145 Weiss E, Berl A, Shir-az O, Sameh Bilal B, Weiss EI, Paitan Y, Zaltsman N, Golberg A, Shalom A. Quaternary ammonium silica nanoparticles for antimicrobial implantable medical devices: An in vitro study. **Life**. 2025. Accepted.

Conference Full Papers (peer reviewed)

- 1 **Golberg A**. Microbial control in milk by intermittently delivered pulsed electric fields. Proceedings of Bio and Food Electrotechnologies 2012, pp 1-6, Salerno Italy.

- 2 **Golberg A**, Linshiz G, Hillson NJ, Koudritsky M, Chemodanov A. Distributed marine biorefineries for developing economies. **Proceeding of ASME Congress and Exhibition 2012**; IMECE2012-86051, pp 1-9.
- 3 Blumrosen G*, **Golberg A***, Abazari A*, Tonner M, Yarmush ML. Efficient Procedure and Methods to Determine Critical Electroporation Parameters. **Proceedings of 2014 IEEE 27th International Symposium on Computer-Based Medical Systems (CBMS)** 2014; pp: 314 – 318, New York, NY. * Equal contributions.
- 4 Khan S **Golberg A**, McCormack M, Bei M, Yarmush ML, Austen WGJr. Hair Stimulation with Pulsed Electric Fields. **Plastic and Reconstructive Surgery** 2015 136 (4S), 30.
- 5 **Golberg A**. Environmental exergonomics: sustainability analysis of energy systems considering impacts on eco-systems services. **Proceedings of ECOS 2015 - the 28th International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems** 2015; June 30-JULY 3, PAU, France. pp: 1-12
- 6 **Golberg A**, Vitkin E, Yakhini Z, Seaweed biorefineries: exergy efficiency, fermentation and sustainability implications; example of potential production of bioethanol from *Kappaphycus alvarezzi* in Philippines. **Proceedings of ECOS 2015 - the 28th International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems** 2015; June 30-JULY 3, PAU, France. pp: 1-12.
- 7 Palatnik, RR, **Golberg A**, Zilberman D, Freer, M. Levin, M. Economics of Natural Resource Utilization: case study of macroalgae biorefinery with two co-products. **Proceedings of EcoMod2018, Venice, Italy, July 4-6, 2018**, pp 1-20
- 8 Palatnik, RR, **Golberg A**, Zilberman D, Freer, M. Levin, M. Time to dare and endure case study of macroalgae two-stage supply Chain with Co-products. **Proceedings of 6th World Congress of Environmental and Resource Economists (WCERE)**. Gothenburg, Sweden. June 25 -29, 2018. pp 1-20
- 9 Blumrosen, G, Weksler, Y, Shkolnik D, **Golberg A**. Efficient Modeling of Plant Short and Long Term Behavioral Responses to a Stimuli. **The 20th IEEE International Conference on BioInformatics and BioEngineering**. Virtual Conference, October 26-28, 2020, USA.
- 10 **Golberg A**, Wise J, Berl A, Shir-Az O, Kravtsov V, Yakhini Z, Shalom A, Vitkin E. Cornulin, detected through electroporation based molecular sampling, discriminates between human basal cell carcinoma and squamous cell carcinoma. 36th EORTC-NCI-AACR Symposium on Molecular Targets and Cancer Therapeutics. 23-25 October 2024, Barcelona, Spain. **European Journal of Cancer**. 2024, 211(1):114718.

Book Chapters:

1. **Golberg A**, Fischer Y, Rubinsky B. The Use of Irreversible Electroporation in Food Preservation. In Irreversible Electroporation, B. Rubinsky, Ed. Springer Berlin Heidelberg 2009; 273-312
2. **Golberg A**, Rubinsky B. Mass Transfer phenomena in Electroporation. In Transport in Biological Media. S.Becker, Ed. Academic Press, Elsevier 2013; 455-492.
3. Gibot L and **Golberg A**. Electroporation in scars/wound healing and skin response. In Handbook of Electroporation. Miklavacic.D Ed. Springer. 2016; 1-18. DOI 10.1007/978-3-319-26779-1_64-1
4. Robin A and **Golberg A**. Pulsed electric fields in marine biorefineries. In Handbook on electroporation. Miklavacic.D Ed. Springer. 2016; 1-16. DOI 10.1007/978-3-319-26779-1_218-1
5. Gibot L, Kotnik T, **Golberg A**. Electroporation Applications in Wound Healing. In Bioengineering in Wound Healing. A Systems Approach. **Golberg A**, Yarmush M. Ed. World Scientific and Imperial College Press. 2017; 355-377. ISBN: 978-981-3144-57-6.
6. **Golberg A**. Scarless tissue regeneration. In Bioengineering in Wound Healing. A Systems Approach. **Golberg A**, Yarmush M. Ed. World Scientific and Imperial College Press. 2017; 1-25. ISBN: 978-981-3144-57-6.
7. **Golberg, A**, Liberzon, A, Vitkin, E, Yakhini Z. Design and analysis of offshore macroalgae biorefineries In Biofuels from Algae: Methods and Protocols. K. Spilling Ed. Springer. Humana Press. 2018. 1-25.
8. **Golberg, A**. Emerging electroporation-based technologies for wound care. In New Technologies in Wound Care. A.Gefen Editor. Elsevier. 2020. 155-170.

9. Polikovskiy M, **Golberg A.** Biorefinery of unique polysaccharides from *Laminaria* sp, *Kappaphycus* sp, and *Ulva* sp.: structure, enzymatic hydrolysis, and bioenergy from released monosaccharides. In *Enzymatic Technologies for Marine Polysaccharides*. A Trincone Editor. CRC Press. 2019. 164-188.
10. **Golberg A**, Zollmann M, Prabu M, Palatnik, RR. Enabling bioeconomy with offshore macroalgae biorefineries. In *Bioeconomy for Sustainable H.B. Singh* Editor. Springer-Nature. 2020. 173-200.

Books:

1. **Golberg A.** Bioelectrochemical phenomena: electrolysis and electroporation. Scholar's press 2013, 228 pages. ISBN-10: 3639510690.
2. **Golberg A.** and Yarmush M.L. Editors. *Bioengineering in Wound Healing. A Systems Approach*. World Scientific and Imperial College Press. 2017, 394 pages. ISBN: 978-981-3144-57-6.
3. **Golberg, A**, Robin A, Zollman M, Traugott H, Palatnik RR, Israel A. *Macroalgal biorefinery for the blue economy*. World Scientific and Imperial College Press. 2021 288 pages.

Major Conference Presentations and Seminars:

- 1 **Golberg A.** M. Belkin and B. Rubinsky, Irreversible Electroporation for Microbial Control of Drugs in Solution, Electroporation Based Technologies and Treatments 2009. Lubiana, Slovenia. Invited speaker.
- 2 **Golberg A.** Macro Algae as a sustainable biomass source for chemicals and biofuels, Cleantech Open National Investor Conference, 2011, San Jose, CA.
- 3 **Golberg A.** Irreversible electroporation in medicine and biotechnology, Invited seminar at AntiCancer Inc., San Diego, CA, 2011
- 4 **Golberg A.** Electrolyses and electroporation in biotechnology, Harvard Medical School, Boston, 2011
- 5 **Golberg A.** Distributed Biorefineries for developing countries, MIT Energy Initiative, Energy Club seminar 2012.
- 6 **Golberg A.** Distributed Biorefineries thermodynamic analyses and optimization, Technion, Mechanical Engineering Faculty, Seminar, Sep 5, 2012.
- 7 **Golberg A.** Microbial Load control by Intermittently delivered pulsed electric fields, Bio and Food Electrotechnologies, Salerno, Italy, Sep 26-28, 2012, presentation. **Conference travel award**
- 8 **Golberg A.** Distributed marine biorefineries for developing economies, FONA FORUM for sustainable development, Berlin, Oct 20-24, Germany, 2012, poster. **Conference travel award**
- 9 **Golberg A.** Irreversible electroporation in medicine, UIC, Department of Biomedical Engineering, Chicago, Nov. 5, 2012. Invited seminar.
- 10 **Golberg A.**, Linshiz G, Koudritsky M, Chemodanov A, Hillson NJ. Distributed marine biorefineries for developing economies, ASME Congress and Exhibition, Houston, Nov 9-15, TX, 2012, presentation.
- 11 **Golberg A.**, Linshiz G, Koudritsky M, Chemodanov A, Hillson NJ. Distributed marine biorefineries for developing economies, Eilat-Eilat Renewable energy conference, Eilat, Nov 28-30, Israel, 2012, poster.
- 12 **Golberg A.**, Broelsch GF, Bohr S, Mihm MC, Austen WG, Albadawi H, Watkins MT, Yarmush ML. Non-thermal, irreversible electroporation (IRE) allows for controlled ablation of cellular compartments followed by scarless regeneration of skin in a rat model, Harvard Surgery Day, 2013, poster.
- 13 **Golberg A.**, Broelsch GF, Bohr S, Mihm MC, Austen WG, Albadawi H, Watkins MT, Yarmush ML. Towards tissue regeneration using irreversible electroporation. **Gordon Research Seminar. Invited Speaker.** June 2013.
- 14 Vitkin E, Linshiz G, **Golberg A.**, Hillson NJ, Yarmush ML, Keasling J, Yakhini Z. Computational modeling of two-step bioethanol production: marine macroalgae *Ulva Lactuca* study. Poster and presentation. IBS13 conference. Beer-Sheva, Israel, June 2013.
- 15 Brölsch GF, **Golberg A.**, Bohr S, Mihm MC Jr, Albadawi H, Watkins MT, Yarmush ML, Austen WG Jr. LOP35: Scarless regeneration of rat skin following ablation by non-thermal irreversible electroporation. *Plastic and Reconstructive Surgery*. 2013 132(2): 108.
- 16 Khan S, **Golberg A.**, Brölsch, GF, Bohr S, Mihm MC Jr, Albadawi H, Watkins MT, Austen WG Jr, Yarmush, ML. Non-Thermal, Irreversible Electroporation: A Novel Tool for Scarless Skin Regeneration. Massachusetts Chapter of the American College of Surgeons 2013 Massachusetts Chapter of the American College of Surgeons Poster Presentation. December 2013.

- 17 **Golberg A**, Vitkin E, Linshiz G, Ahma-Khan S, Hillson NJ, Yakhini Z, Yarmush ML, Proposed Design of Distributed Marine Biorefineries: Thermodynamics, Technology, and Sustainability Implications for Developing economies. ISES Abraham Kogan Session Lecture, October 7, 2013. Technion Israel.
- 18 **Golberg A**, Khan S, Broelsch GF, Bohr S, Mihm MC, Austen WG, Albadawi H, Watkins MT, Yarmush ML. "Non-Thermal, Pulsed Electric Field Cell Ablation: A Novel Tool for Regenerative Medicine and Scarless Skin Regeneration. Galil Biomedicine IV. October 8, 2013. Khiryat Shmona, Israel.
- 19 **Golberg A**, Khan S, Broelsch GF, Bohr S, Mihm MC, Austen WG, Albadawi H, Watkins, MT, Yarmush ML. Non-Thermal, Pulsed Electric Field Cell Ablation: A Novel Tool for Regenerative Medicine and Scarless Skin Regeneration. FISEB (ILANIT) Congress 7. February 11, 2014. Eilat, Israel. Poster Session.
- 20 **Golberg A**, Broelsch GF, Vecchio D, Khan S, Hamblin MR, Austen WG, Sheridan RL, Yarmush ML. Pulsed electric fields for burn wound disinfection in the murine model. American Burn Association, annual conference. Oral presentation. 25 March 2014, Boston MA. Abstract in Supplement to Journal of Burn Care & Research, 35(5):S98. 2014.
- 21 **Golberg A**, Sheridan RL, Austen WJ Jr, Yarmush ML. Pulsed electric fields for wound management. 10th Early Stage Life Science Conference. April 10, 2014. Boston, MA. Oral presentation. Abstract in Proceedings page 32.
- 22 **Golberg A**. Energy Efficient Seaweed-based Biorefineries for Developing Countries, Proceedings of Electrobioref 2015. January 28, 2015, Compiègne, France.
- 23 **Golberg A**. Rational design of seaweed based biorefineries. ISES meeting. Ben Gurion University. February 16, 2015. Israel.
- 24 **Golberg A**. Energy Efficient Marine biorefineries for all inclusive bioeconomy. Food in the new era, Israel Food Producers Association conference. Ramat Gan, June 15, 2015. Israel.
- 25 **Golberg A**, Bruinsma B, Uygun B, Yarmush ML. Tissue heterogeneity in structure and conductivity contribute to cell survival during irreversible electroporation ablation by "electric field sinks". 1st World Congress on Electroporation and Pulsed Electric Fields in Biology, Medicine and Food & Environmental Technologies. Portoroz, September 6-10. Slovenia.
- 26 **Golberg A**, Rabinowitch HD, Rubinsky B. Galvanic apparent internal impedance for electroporation imaging. 1st World Congress on Electroporation and Pulsed Electric Fields in Biology, Medicine and Food & Environmental Technologies. Portoroz, September 6-10. Slovenia. 2015
- 27 Khan S, Blumrosen G, Vecchio D, **Golberg A**, McCormack, MC, Yarmush ML, Hamblin MR, Austen WG. Eradication of multidrug-resistant pseudomonas biofilm with pulsed electric fields. 1st World Congress on Electroporation and Pulsed Electric Fields in Biology, Medicine and Food & Environmental Technologies. Portoroz, September 6-10. Slovenia. 2015
- 28 Fernand F, Sack M, Muller G, **Golberg A**. Energy efficient drying of macroalgae *Ulva* with pulsed electric fields. 1st World Congress on Electroporation and Pulsed Electric Fields in Biology, Medicine and Food & Environmental Technologies. Portoroz, September 6-10. Slovenia.
- 29 **Golberg A**, Vitkin E, Yakhini Z. Computer-assisted fermentation design of complex macroalgae biomass into bioethanol. Israel society of biotechnology engineering. Tel Aviv. December 13, 2015. Poster.
- 30 Lo W, Villiger M, **Golberg A**, Khan S, Austen W, Yarmush M, Bouma B. Non-invasive volumetric imaging of hypertrophic scars in vivo. SPIE Photonics West 2015 - Photonics in Dermatology and Plastic Surgery. 2015.
- 31 **Golberg A**. Energy Efficient Biomass Processing with Pulsed Electric Fields for Bioeconomy and Sustainable Development. EU JRC workshop on bioeconomy. HaGoshrim, Israel. December 17. 2015. **Invited speaker.**
- 32 **Golberg A**. Marine biorefineries for sustainable infrastructures. Weisman Institute of Science. Seminar Department of Earth and Planetary Sciences. May 2016.
- 33 **Golberg A**. Thermochemical hydrolysis of macroalgae *Ulva* for biorefinery: physical and chemical parameters optimization. Israel Sustainable Energy Society Annual Meeting. April 2016. Tel Aviv.
- 34 **Golberg A**. Marine biorefineries for sustainable infrastructures in Israel. Presenting to the Israel committee for coast and marine territories planning. June 2016.

- 35 **Golberg, A.** Environmental Bioengineering solving energy problems. Tsinghua-TAU XIN Center Workshop on Scientific Frontiers, Beijing, September 2016.
- 36 **Golberg, A.** Spectroscopical methods for carbohydrate profiling of green macroalgae *Ulva*. Phycomorph meeting on fundamentals of macroalgae morphology. Limassol, Cyprus, September 2016.
- 37 **Golberg, A.** Environmental Bioengineering for Food and Energy Security. Food Security Workshop 2016. Pilani, India. November 2016.
- 38 **Golberg, A.** Offshore marine biorefineries. Invited lecture. Weismann Institute of Science Renewable Energy initiative. February 2017.
- 39 **Golberg, A.** Offshore marine biorefinery in Israel a consolidated approach to support bioeconomy and blue growth. Marine Offshore Biorefineries workshop. Tel Aviv University. May 2017.
- 40 **Golberg, A.** Electroporation and Pulsed Electric field technologies in marine macroalgae biorefineries. 7th International Conference on Algal Biomass, Biofuels and Bioproducts. 18-21 June 2017. Miami, FL. USA Elsevier Conference. **Invited Speaker.**
- 41 **Golberg A.** Polikovskiy M, Sack M. Allergenicity assessment macroalgae *Ulva* protein derived with pulsed electric fields. 2nd World Congress on Electroporation, Pulsed Electric Fields in Biology, Medicine, Food and Environmental Technologies. Norfolk. VA. USA. September 24-28, 2017.
- 42 **Golberg, A.** Macroalgae Biorefinery for Bioeconomy. 1st Conference on BioEconomy. Emek Izrael College. Afula. Israel. March 28. 2018.
- 43 **Golberg, A.** Production of Macroalgae for Chemicals, Materials and Fuels. Mediterranean Sea: Natural, Strategic and Economic Resource. IDC Herzelia. Herzelia. Israel. May 1. 2018
- 44 **Golberg, A.** Can offshore grown macroalgae derived proteins and starch address the soaring demands for commodities. 8th International Conference on Algal Biomass, Biofuels and Bioproducts. 11-13 June 2018. Seattle, WA. USA Elsevier Conference. **Invited Speaker.**
- 45 **Golberg, A.** Electroporation and pulsed electric fields for regenerative medicine. Tsinghua University Medical School. Beijing, China. October 2018.
- 46 **Golberg, A.** Low-cost pulsed electric field devices enable food-energy-water nexus with macroalgae biorefinery. Tsinghua-TAU XIN Center Conference, Beijing, China. October 2018.
- 47 **Golberg, A.** Non-thermal, Partial Irreversible Electroporation for Burn Wound Therapies and Skin Regeneration. Innovations in Wound Healing. 6-12 December 2018. Key West, USA. **Invited Speaker. IWH Faculty.**
- 48 **Golberg, A.** Offshore marine biorefineries for the production of sustainable food, chemicals and fuels in India Academic Dialogues: Political & Socio-Cultural Crossings Joint International Conference. 17 January 2019. Tel Aviv. Israel.
- 49 **Golberg, A.** Free-floating offshore cultivation of *Ulva* sp. Phycomorph conference. Brussels, Belgium, March 13-14, 2019
- 50 **Golberg, A.** Halophyte biorefinery for production of bioplastic from seaweeds. 3EAT conference. Emek Izrael College. Afula. Israel. March 17. 2019
- 51 **Golberg, A.** Electroporation for wound healing and regenerative medicine. Meir Hospital. Department of Plastic Surgery. Israel. April 16, 2019.
- 52 **Golberg A.** Offshore marine biorefineries for the production of biofuels in Israel. 26th International Seaweed Association meeting. Jeju. Korea. April 28-May 3. 2019. **Invited speaker.**
- 53 **Golberg A.** Offshore biomass production for biofuels. Israel Society of Ecology and Environmental Sciences Annual Conference. Tel Aviv. June 19, 2019.
- 54 **Golberg, A.** Reducing the environmental impact of waste chicken meat with pulsed electric fields driven extraction of valuable compounds. 3rd World Congress on Electroporation, Pulsed Electric Fields in Biology, Medicine, Food and Environmental Technologies. Toulouse. France. September 3-6, 2019
- 55 **Golberg A.** Levkov K. Towards sustainable marine biorefineries: macroalgae continuous fractionation with electric fields and mechanical press. The 12th European congress of chemical engineering Florence 15-19 September 2019.
- 56 **Golberg A.** Pulsed electric field and Electroporation technologies in wound healing. VIII Latin American Conference on Biomedical Engineering and XLII National Conference on Biomedical Engineering. October 2-5, 2019, Cancún, México. **Plenary speaker.**

- 57 **Golberg A.** Bioremediation with marine macroalgae: Multi-Scale Dynamic Modeling of intensive offshore *Ulva* sp. cultivation for nitrogen sequestration. Multiscale and Multiphysics Modeling and Computation Analysis, Environmental Modeling. BITS Pilany, Pilany, India. October 17, 2020.
- 58 **Golberg A.**, High voltage pulsed electric fields based fractionation of in macroalgae biorefinery. International Conference on Biotechnology for Sustainable Agriculture, Environment and Health (BASEH-2021). Birla Institute of Scientific Research, Jaipur, Rajasthan, India. April 4-8, 2021
- 59 **Golberg A.** News from the sea: anti-covid19 compounds from seaweeds. 1st conference of the Tel Aviv University Center for Combatting Pandemics (TCCP). Tel Aviv. Israel March 30, 2022.
- 60 **Golberg A.** Molecular biopsy with electroporation for tumor heterogeneity profiling. 4th World Congress on Electroporation, Pulsed Electric Fields in Biology, Medicine, Food and Environmental Technologies. Copenhagen. Denmark. October 9-12, 2022
- 61 **Golberg A.** *Ulva* sp. biorefinery for food and bioenergy production. *Ulva* as a wheat of the sea. COST Action meeting. Lisbon Portugal. May 15, 2023.
- 62 **Golberg A.** Electroporation based molecular biopsy for skin cancer diagnostics. European Cancer Research Association congress. 12-15 June 2023. Turino Italy.
- 63 **Golberg A.** Molecular biopsy with electroporation for tumor heterogeneity profiling: progress. 18 August 2023. Oslo, Norway.
- 64 **Golberg. A** The potential of halophyte biotechnology for alternative proteins. Dead Sea Research Center. Tel Aviv. 8 April 2024.
- 65 **Golberg A.** Reducing environment impact of the polyhydroxyalkanoates production by halophytic biorefinery. PolyMertech 2024. Merseburg. Germany. 20 June 2024. **Invited Keynote Speaker.**
- 66 **Golberg A.** Hydrothermal liquefaction of organic hospital waste. 11th International Conference on Energy, Sustainability and Climate Crisis August 26 - 30, 2024, Corfu, Greece.

Granted patents

1. **Alexander Golberg** and Arthur Robin. Method and device for non-thermal extraction of phytochemicals from macroalgae. **US20180223272A1**
2. Kleventiy Levkov and **Alexander Golberg.** Regulated storage capacitor charging device and method. **EP3804134A4**
3. Martin L. Yarmush, William G. Austen, **Alexander Golberg**, Saiqa I. Khan System and method for electrical control of bacteria **US11590247**, February 28, 2023
4. **Alexander Golberg**, Yarmush M, Sheridan R, Austin WG, Broelsch F, Rubinsky B, Belkin M. Systems and methods for delivering pulsed electric fields to skin tissue. 2023. **US20160213922A1**
5. **Alexander Golberg**, Alexander Chemodanov, Alexander Liberzon. Device and Methods for Free Floating Macroalgae Cultivation Offshore. 2024. **Japanese Patent Application No. 2021-546260**

Patent applications

- 1 Rubinsky B, Belkin M, **Golberg A**, Sverdlik A. WIPO Patent Application WO/2010/113150. An apparatus, system and method for preventing biological contamination to materials during storage using pulsed electric energy.
- 2 **Golberg A**, Rubinsky B. United States Application 20130197425. Current cage for reduction of non-target tissue exposure to electric fields in electroporation based treatment.
- 3 **Golberg A**, Yarmush ML, Broelsch F, Sheridan R, Austen WGJr. PCT patent application. Device for pulsed electric field skin treatment.
- 4 **Golberg A**, Yarmush ML, Broelsch F, Sheridan R, Austen WGJr Intermittently Delivered Pulsed Electric Fields for Cell Density and Biofilm Formation Control in Wounds. Provisional application.
- 5 Khan, S, **Golberg A**, Yarmush ML, Austen WGJr. PEF for Implant Disinfection. Provisional application.
- 6 Khan, S, **Golberg A**, Yarmush ML, Austen WGJr. Pulsed Electric Fields for Hair Growth Induction. Provisional application.
- 7 **Golberg A.** Pulsed electric field device for phytochemicals extraction from macroalgae. Provisional application.

- 8 Tali Konry, **Golberg, A.**, Yarmish ML. US Patent 20150346201 System and method for picolitre volume microfluidic diagnostics.
- 9 Oklu Rahmi, Yarmush Martin, **Golberg A**, PCT/US2014/034198, WO 2015076864 A1. Methods and devices for treating and preventing conditions of tubular body structures
- 10 **Golberg A**, Severino J, Yakhini Z. Molecular Harvesting with electroporation for tissue profiling. PCT. 2020.
- 11 **Golberg A**. Gosh, S, Gozin M. Method for production of PHA by fermentation of archaea. WO2023073684A1
- 12 Golberg A, Gozin M, Shefer S, Robin A. Ulvan extracts and uses thereof. 2023. WO2023073704A1

Teaching

I have developed the following courses

- Introduction to Environmental Bioengineering
- Development and evolution of energy systems
- Industrial ecology
- Environmental aspects of bioengineering
- Innovation in environmental studies.
- Alternative proteins (joint with Good Food Institute).
- Eco-health together (joint with Meir Medical Center)
- Appropriate technologies for developing countries (with Engineers Without Borders).

Graduated Students and Trainees

Postdoc

Kapil Kumar Ingle, PhD	2015-2016	Environmental Studies
Xiaoxing Li, MD/PhD	2015-2016	Surgery
Mengjie Wu, DMD	2017-2018	Surgery.
Meghana Prabhu, PhD	2017-2019	Environmental Biotechnology. Prof. Goa University
Amrita Singh, PhD	2019-2021	Cancer diagnostics. Ass. Prof. National Institute of Tech, Rourkela
Supratim Gosh, PhD.	2018-2022	Environmental Biotechnology. Ass Prof. BITS Pilani.

PhD students

Mark Polikovsky	2015-2020	Environmental studies
Arthur Robin	2016-2021	Environmental Studies
Meiron Zollmann	2016-2021	Environmental Studies
Shai Shefer	2017-2021	Environmental Studies
Rima Gnaim	2019-2024	Environmental Studies

MSc

Shai Shefer	2014-2016	Environmental Studies
Tal Granot	2015-2016	Electrical Engineering
Avihay Ashish	2014-2015	Electrical Engineering
Oz Habiby	2015-2017	Mechanical Engineering
Semion Greiserman	2016-2018	Environmental Engineering
Andrey Eithan Rubin	2016-2018	Environmental Studies
Omri Nahor	2016-2019	Environmental Studies
Noam Rosinsky	2014-2019	Environmental Studies
Mihai Gillis	2016-2019	Environmental Studies
Efraim Steinbruch	2018-2020	Mechanical Engineering
Bender Barak	2016-2020	Environmental Studies
Alon Shomron	2019-2021	Environmental Studies
Rati Gelashvilli	2021-2023	Environmental Studies
Batel Gabay	2020-2023	Biomedical Engineering

Leetal Louie 2021-2024 Biomedical Engineering

BSc final project in engineering

Arie Faitelson, Mechanical Engineering, 2015-2016

Maxim Kozminov, Mechanical Engineering, 2015-2016

Daniel Bar 2017-2018

Lior Reznik, Mechanical Engineering, 2016-2017

Sagi Bachar, Mechanical Engineering, 2016-2017

Elad Taiz, Mechanical Engineering, 2016-2017

Aviv Dror, Electrical Engineering 2017-2018

Eyal Barzani, Electrical Engineering 2017-2018

Ravid Bason, Electrical Engineering 2017-2018

Yonatan Arbiv, Electrical Engineering 2017-2018

Yoni Peleg, Mechanical Engineering, Geophysics and Environment 2015-2018

Omri Solomon, Mechanical Engineering, Geophysics and Environment 2017-2018

Tomer Betram, Mechanical Engineering, Geophysics and Environment 2017-2018

Yadin Cohen, Mechanical Engineering, Geophysics and Environment 2017-2018

Gal Guterman, Mechanical Engineering, Geophysics and Environment 2017-2018

Yael Nefesh Karutzero, Material Engineering and Chemistry. 2018-2019

Sudhanshu Gupta, Chemical Engineering BITS PILANY. 2021.

Eliyahi Cohen Mechanical Engineering, Geophysics and Environment 2022-2023

Amir Durenias Mechanical Engineering, Geophysics and Environment 2022-2023

Media coverage

Boiled potato battery project

Reuters: <http://www.reuters.com/news/video/story?videoId=127046608>

Al-Jazeera: <http://www.youtube.com/watch?v=Izfs2keZnw4>

Russian First channel: <http://www.1tv.ru/news/other/158559>

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