Galit Katarivas Levy

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Education

B.Sc. (2004 – 2008) Department of Materials Engineering, Ben-Gurion University of the Negev (BGU), Israel.

M.Sc. (2008 – 2010) ***Magna Cum Laude***, Department of Materials Engineering, BGU, Israel.
Title: *Development of new magnesium alloys for biodegradable implants*.
PI: Prof Eli Aghion.

Ph.D. (2010 – 2016) Department of Materials Engineering, BGU, Israel.
Title: *Development of multilayered system for biodegradable magnesium implant with superior corrosion performance*.
Ph.D. thesis approval: 11th January 2016
PI: Prof Eli Aghion.

Professional Experience

2020 – present **Senior Lecturer** (*Assistant Professor equivalent*), Department of Biomedical Engineering, Ben Gurion University of the Negev, Israel.

2019 – 2020 **Research Associate in Brain Cancer Research**, Department of Engineering, Division C - Materials Engineering & Material-Tissue Interactions, University of Cambridge, UK.

2017 – 2019 **Blavatnik Research Fellow**, Department of Engineering, Division C - Materials Engineering & Material-Tissue Interactions, University of Cambridge, UK.

2017 – 2020 **Robinson College Post-Doctoral Associate**, University of Cambridge, UK.

2017 – 2019 **Regional Manager of ScienceAbroad**, an international NGO.

2016 – 2017 **Post-Doctoral Fellow**, Department of Materials Engineering, BGU, Israel.

Educational Activities

(A) Courses

2022-present "Additive manufacturing in Biomedical Applications" – Ph.D. & M.Sc., Biomedical Engineering Dept. 367-2-6631, BGU.

2021-present "Biomechanics Laboratories" – B.Sc., Biomedical Engineering Dept. 367-1-3043, BGU.

2021-present "Biomedical Engineering Laboratory 1" – B.Sc., Biomedical Engineering Dept. 367-1-2043, BGU.

2021-present "Biomaterials" – B.Sc., Biomedical Engineering Dept. 367-1-4591, BGU.

2020-present "Biofluids Mechanics" – B.Sc., Biomedical Engineering Dept. 367-1-2311, BGU.

2015 – 2017 "Materials Science" – Technician, Etgar- Engineering and Technology College, Israel

2008 – 2015 **"**Physical Metallurgy 2" – B.Sc., Materials Engineering Dept., 365-1-3021, BGU.
"Physical Metallurgy 1" – B.Sc., Materials Engineering Dept., 365-1-3011, BGU.

2008 – 2015 "Crystallography & X-Ray Diffraction" – B.Sc., Materials Engineering Dept., 365-1-4441, BGU.

2008 – 2015 "Materials Science" – B.Sc., Materials Engineering Dept., 365-1-2011, BGU.

2008 – 2015 "Corrosion, Metallography & NDT Laboratories" – B.Sc., Materials Engineering Dept., 365-1-2313/3323/4013, BGU.

(B) M.Sc. Research students

2021 – present Mark Bezner, M.Sc., BGU.
2021 – present Shahar Katz, M.Sc., BGU (Jointly with Dr. Noam Levaot).
2021 – present Or Ariel, M.Sc., BGU (Jointly with Prof Amir Shapiro).
2022 – present Itamar Tulpan, M.Sc., BGU.
2022 – present Sahar Halevi, M.Sc., BGU.

(C) Ph.D. Research students

2022 – present Noa Gabay, Ph.D., BGU.

Awards, Citations, Honors, Fellowships

(A) Honors & Awards

2021 40 Most Promising Young People of 2021, The Marker.
2020 MDPI Metals Highly Cited Paper Award 2019, 2nd prize, 400 CHF, for "*The prospects of zinc and zinc-based alloys as a structural material for biodegradable implants – review paper*"
2019 Endorsement under Tier 1 - Exceptional Talent to the *Royal Academy of Engineering*, UK.
2019 CAPA Award 2019, 1st ranking, University of Cambridge, Project: *Drug-releasing magnetic scaffold for eradication of post-surgery residual glioblastoma*, £2,000.
2016 - 2018 Marie Sklodowska-Curie Actions Seal of Excellence, European Commission, Horizon 2020, Project: *Micro vessels in magneto active coatings*.
2009 Honor prize for the undergraduate project in the Department of Materials Engineering, for the work *nano/sub-micron aluminum alloy*, BGU, Israel.

(B) Fellowships

2016 Blavatnik Postdoctoral Research Fellowship, administered by the Blavatnik Family Foundation, British Council, and the University of Cambridge. Awarded to three top scientists a year, £79,500
2016 Post-Doctoral Fellowship for Outstanding Researcher in STEM supported by BGU, Israel. Awarded to two recipients per year, $40,000.
2016 Reuben Foundation Post-Doctoral Award, £30,000.
2010 - 2015 Negev Scholarship for outstanding PhD students.

Peer Reviewed Journal Publications

J1. Aghion E., Levy G. (**2010**) *The effect of Ca on the in vitro corrosion performance of the biodegradable Mg-Nd-Y-Zr alloy*, Journal of Materials Science, 45, 3096-3101. (IF- 4.22, JR- 128/345 Q2, cited:39).
J2. Aghion E., Levy G., Ovadia S. (**2012**) *In-vivo behavior of biodegradable Mg-Nd-Y-Zr-Ca alloy*, Journal of Materials Science: Materials in Medicine, 23, 805-812. (IF-4.727, JR-38/98 Q2, cited:56).
J3. Levy G., Aghion E. (**2013**) *Effect of diffusion coating of Nd on the corrosion resistance of biodegradable Mg implants in simulated physiological electrolyte*, Acta Biomaterialia, 9, 8624-8630. (IF- 10.633, JR-13/98 Q1, cited:44).
J4. Katarivas Levy G., Aghion E. (**2016**) *Influence of heat treatment temperature on corrosion characteristics of biodegradable EW10X04 Mg alloy coated with Nd,* Advanced Engineering Materials, 18, 269-276. (IF-4.122, JR- 146/345 Q2, cited:7).
J5. Dunne C.F., Katarivas Levy G., Hakimi O., Aghion E., Twomey B., Stanton K.T., (**2016**) *Corrosion behaviour of biodegradable magnesium alloys with hydroxyapatite coatings*, Surface and Coatings Technology, 289, 37-44. (IF-4.865, JR-4/22 Q1, cited:48).

J6. Katarivas Levy G., Ventura Y., Goldman J., Vago R., Aghion E. (**2016**) *Cytotoxic characteristics of biodegradable EW10X04 Mg alloy after Nd coating and subsequent heat treatment,* Materials Science and Engineering C, 62, 752–761. (IF- 8.457, JR-8/44 Q1, cited:16).

J7. Katarivas Levy G., Leon A., Kafri A., Ventura Y., Drelich J.W., Goldman J., Vago R., Aghion E. (**2017**) *Evaluation of biodegradable Zn-1%Mg and Zn-1%Mg-0.5%Ca alloys for biomedical applications,* Journal of Materials Science: Materials in Medicine, 28, 174. (IF-4.727, JR-38/98 Q2, cited:38).

J8. Katarivas Levy G., Goldman J., Aghion E. (**2017**) *The prospects of zinc and zinc-based alloys as a structural material for biodegradable implants – review paper,* Metals, 7, 402. (IF-2.695, JR-25/79 Q2, cited:141).

J9. Katarivas Levy G., Kafri A., Ventura Y., Leon A., Goldman J., Vago R., Aghion E. (**2019**) *Surface stabilization treatment enhances initial cells viability and adhesion for biodegradable zinc alloys*, Materials Letters, 248, 130-133. (IF- 3.574, JR-162/414 Q2, cited:21).

J10. Ron T., Katarivas Levy G., Dolev O., Leon A., Shirizly A., Aghion E. (**2019**) *Environmental behavior of low carbon steel produced by a wire arc additive manufacturing process*, Metals, 9(8), 888. (IF-2.695, JR-25/79 Q2, cited:22).

J11. Katarivas Levy G., Birch M.A., Brooks R.A., Neelakantan S., Markaki A.E. (**2019**) *Stimulation of human osteoblast differentiation in magneto-mechanically actuated ferromagnetic fibre networks,* Journal of Clinical Medicine, 8(10), 1522. (IF- 4.964, JR- 50/329 Q1, cited:7).

J12. Katarivas Levy G., Ong J., Birch M.A., Justin A.W., Markaki A.E. (**2019**) *Albumin-enriched fibrin hydrogel embedded in active ferromagnetic networks improves osteoblast differentiation and vascular self-organisation*. Polymers, 11(11), 1743. (IF- 4.967, JR- 16/90 Q1, cited:3).

J13. Ron T., Katarivas Levy G., Dolev O., Leon A., Shirizly A., Aghion E. (**2020**) *The effect of microstructural imperfections on corrosion fatigue of additively manufactured ER70S-6 alloy produced by wire arc deposition*. Metals, 10(1), 98. (IF-2.695, JR-25/79 Q2, cited:15).

J14. Leon A, Katarivas Levy G, Ron T, Shirizly A, Aghion E. *The effect of hot isostatic pressure on the corrosion performance of Ti-6Al-4V produced by an electron-beam melting additive manufacturing process*. Additive Manufacturing, **2020**, 33, 101039. (IF-10.998, JR-1/51 Q1, cited:24).

J15. Iandolo D., Sheard J., Katarivas Levy G., Pitsalidis C., Tan E., Dennis A., Kim J.S., Markaki A.E., Widera D., Owens R. (**2020**) *Biomimetic and electroactive scaffolds for human neural crest-derived stem cell expansion and osteogenic differentiation*, MRS Communications, 10(1), 179-187. (IF-2.935, JR-213/345 Q3, cited:13).

J16. Leon A., Katarivas Levy G., Ron T., Shirizly A., Aghion E. (**2020**) *The effect of strain rate on stress corrosion performance of Ti6Al4V alloy produced by additive manufacturing process*. Journal of Materials Research and Technology, 9(3), 4097-4105. (IF-6.267, JR-8/79 Q1, cited:16).

J17. Ong J.[*], Zhao J.[*], Katarivas Levy G., Justin A.W., Markaki A.E. (**2020**) *Functionalisation of a heat-derived and bio-inert albumin hydrogel with extracellular matrix by air plasma treatment*. Scientific Reports, 10, 12429. [*]equal contribution, (IF-4.996, JR-19/134 Q1, cited:5).

J18. Gabay Bass N., Katarivas Levy G., Ron T., Vago R., Goldman J., Shirizly A., Aghion E., (**2022**) Electrochemical Behaviour and Direct Cell Viability Analysis of Hybrid Implants Made of Ti-6Al-4V Lattices Infiltrated with a Bioabsorbable Zn-Based Alloy. Metals, 12, 1735. (IF-2.695, JR-25/79 Q2).

Conference Proceedings

C1. Katarivas Levy G., Aghion E. (**2015**) *Improving the corrosion resistance of biodegradable magnesium alloys by diffusion coating process*, *In: Magnesium Technology 2015*, Editors: Manuel MV, Singh A, Alderman M, Neelameggham NR, John Wiley & Sons, Inc, pages: 403-406, DOI:10.1007/978-3-319-48185-2_75, ISBN: 978-3-319-48185-2.

C2. Iandolo D., Sheard J., Katarivas Levy G., Pitsalidis C., Santoro F., Markaki A.E., Widera D., Owens R.M., (**2020**) *Bone tissue engineering: A bioelectronics approach*. Bone Reports, 13 Supplement, 100380.

Presentations in Scientific Conferences

A1. Levy G., Aghion E. (**2012**) *Development of new magnesium alloys for biodegradable implants,* IMEC 15**,** The 15th Israel, Materials Engineering Conference, 28th February – 1st March, Dead Sea, Israel.

A2. Levy G., Aghion E. (**2012**) *Diffusion coating of Nd in biodegradable Mg implants,* 4th Symposium on Biodegradable Metals, 27th August – 1st September, Maratea, Italy.

A3. Levy G., Aghion E. (**2014**) *Investigating the corrosion behaviour of biodegradable Mg implants with Nd diffusion coating,* IMEC 16**,** The 16th Israel, Materials Engineering Conference, February 23-25, Technion, Haifa, Israel.

A4. Levy G., Aghion E. (**2014**) *Diffusion coating treatment as a method to prolong the life span of biodegradable magnesium implants*, Magnesium-21/Broad Horizons, The 3rd International Conference and Exhibition, April 22 – 24, St. Petersburg, Russia.

A5. Katarivas Levy G., Aghion E. (**2015**) *Improving the corrosion resistance of biodegradable Mg alloys by diffusion coating process,* TMS 2015 144th Annual Meeting & Exhibition, March 15-19, Orlando, Florida, USA.

A6. Katarivas Levy G., Leon A., Jan L., Kafri A., Goldman J., Aghion E. (**2016**) *Development of new zinc base alloys for biodegradable implants"*, IMEC 17**,** The 17th Israel, Materials Engineering Conference, February 1-2, Bar-Ilan University, Israel.

A7. Kafri A., Leon A., Katarivas Levy G., Aghion E. (**2018**) *The effect of Mg and Ca on the potential capabilities of pure zinc to serve as bioabsorble implant material,* IMEC 18**,** The 18th Israel, Materials Engineering Conference, February 6-8, Dead Sea, Israel.

A8. Katarivas Levy G., Symeonidou A., Brooks R.A., Birch M.A., Markaki A.E. (**2019**) *Ferritic fibre networks for magnetically-induced bioactivation*, TERMIS EU 2019, May 27-31, Rhodes, Greece.

A9. Katarivas Levy G., Birch M.A., Brooks R.A., Markaki A.E. (**2020**) *Magnetic Activation of Ferromagnetic Fibre Network for Bone Regeneration*, TMS 2020 Annual Meeting & Exhibition, February 23-27, San Diego, California, USA

A10. Iandolo D., Sheard J., Katarivas Levy G., Pitsalidis C., Santoro F., Markaki A.E., Widera D., Owens R.M., (**2020**) "*Bone tissue engineering: A bioelectronics approach"*, 47th European Calcified Tissue Society Congress, ECTS Congress 2020, October 22-24, Virtual event.

A11. Katarivas Levy G. (**2021**) *Femoral Hip Stem with Tailor-made Geometry Fabricated by Additive Manufacturing*, TMS 2021 Annual Meeting & Exhibition, March 15-18, Virtual event.

A12. Tulpan I., Biton N., Emuna M., Snir Y., Katarivas Levy G., (**2021**) "*A Novel Ti-Al Hybrid Composite based on Additively Manufactured Lattice- impregnated Structure"*, IMEC 21**,** The 21th Israel, Materials Engineering Conference, December 13-14, Jerusalem, Israel.

A13. Katarivas Levy G., ***Invited talk***. (**2021**) *Additive Manufacturing for Biomedical Applications"*, IMEC 21**,** The 21th Israel, Materials Engineering Conference, December 13-14, Ramat Gan, Israel.

A14. Katarivas Levy G. (**2022**) *"3D-Printed Metallic Lattice Scaffolds for Orthopedic Bone Reconstruction"*, 2022 MRS Spring Meeting, May 8 – 13, Honolulu, Hawaii, USA.

Research Grants

2019 – 2020 Isaac Newton Trust, £30,000.

2021 – 2024 Israel Ministry of Science & Technology (MOST) -Science Forefront on the project of *Cellular Scaffolds with Active Coating for Orthopedic Applications*, ₪800,000.

National & International Collaborations

2021–ongoing Dr. Amit Benady and Dr. Solomon Dadia, the Levin Center for Surgical Innovation and 3D Printing, Tel Aviv Medical Center, *Development of 3D-printed metallic patient-specific implants for bone reconstruction surgeries.*

2021–ongoing ClevAlign Israel LTD, *Additive Manufacturing of Clear Aligners*

2021–ongoing Dr. Noam Levaot, Department of Physiology and Cell Biology, BGU, *Cellular Scaffolds with Active Coating for Orthopedic Applications*

2021–ongoing Dr. Yoav Snir, Dr. Moran Emuna, and Noa Biton, Nuclear Research Centre-Negev, *Novel Metal-metal Interpenetrating Phase Composites Based on a Reinforced TPMS Lattice Structures*

2016–ongoing Dr. Amnon Shirizly, Rafael Advanced Defense Systems, Israel, and Prof Eli Aghion, Department of Materials Engineering, BGU, Israel, *Additive manufacturing of advanced materials*

2019 – 2020 Dr. Mark Birch, Division of Trauma and Orthopaedic Surgery, Addenbrooke's Hospital, Cambridge, and Prof. Colin Watts, Institute of Cancer and Genomic Sciences, University of Birmingham, *Magnetically modulated drug release wafers for eradication of post-surgery residual glioblastoma.*

2017 – 2020 Dr. Roger Brooks & Dr. Mark Birch, Division of Trauma and Orthopaedic Surgery, Addenbrooke's Hospital, Cambridge, *Vascularisation Potential of Smart Magneto-Active Layers on Implants*

2014 – 2017 Prof Jeremy Goldman, Michigan Technological University, *The development of new Zn alloys for biomedical application*

2014 – 2015 Dr. Kenneth Stanton, University College Dublin and Barry Twomey, EnBio Ltd. *Deposition hydroxyapatite and fluorapatite coatings on biodegradable Mg alloys*

2014 – 2015 Sharon-Tuvia LTD, Ness-Ziona Israel, *Titanium alloy and aluminum alloy obtained by 3D printing*

2014 – 2015 Prof Lahav Ori, Technion University Israel, *Production of Mg from seawater using thermal-reduction-based technology*

2014 – 2015 Extal Company, Jerusalem, Israel, *Upgrading of the surface treatment for extrusion aluminium moulds*

2012 – 2014 Technion University, Haifa Israel, *Development of high performance lightweight structural material by synthesize*

2011 – 2012 Omen High Pressure Die Casting Company, Hazor Israel, *Environmental behaviour of A380 Al alloy produced by 3 plate high pressure die casting*

Professional Activities

(A) <u>Professional Functions Outside Universities/institutions</u>

2019 - 2020 Partnership Grant 2019, Project: *Can 3D printing be applied in medical applications to improve the lives of others?*, with Mrs Ishbel Coleman, Headteacher Coton Primary School, UK.

2018 - 2019 Regional manager of ScienceAbroad, UK

2014 – 2017 Introduction STEM to 8-year girls, Israel

(B) <u>Reviewer for Journals</u>

Acta Biomaterialia; Advanced Engineering Materials; Advanced Healthcare Material; Materials – MDPI; Metal – MDPI; Magnesium Research; International Journal of Molecular Sciences; Biomolecules – MDPI; ACS Applied Bio Materials;