Louisa Meshi 1.2023

CURRICULUM VITAE

• **Personal Details**

Name:	Louisa Meshi
Date and place of birth:	3/10/1977, Ukraine
Date of immigration:	11/1990
Marital status:	married + 3
Address and telephone number at work:	Department of Materials Engineering, Ben-Gurion University of the Negev, Beer-Sheva 84105 Israel +(972)-8-6472576 (Phone)
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Researcher ID:	F-2229-2012

• **Education**

1996-2000	**B.Sc.**	Ben-Gurion University of the Negev, Department of Materials Engineering, Beer-Sheva, Israel.
2000-2002	**M.Sc.** **(Magna cum laude)**	Ben-Gurion University of the Negev, Department of Materials Engineering, Beer-Sheva, Israel. **Title of thesis**: Structure determination by electron microscopy. **Advisor**: Prof. M. Talianker.
2001-2002	**Diploma SDPD**	Universite Du Main, Department of Chemistry, France. **Course:** "Structure Determination by X-ray Powder Diffraction". **Advisor**: Prof. A. Le Bail.
2002-2006	**Ph.D.**	Ben-Gurion University of the Negev, Department of Material Engineering, Beer-Sheva, Israel. **Title of thesis**: Structural investigation of ternary phases in the Al-Fe-U system. **Advisor:** Prof. M. Talianker.

• **Employment History** (in reverse chronological order)

2020-present	**Full Professor**, Department of Materials Engineering, Ben Gurion University of the Negev, Beer Sheva, Israel.
2015-2020	**Associate Professor**, Department of Materials Engineering, Ben Gurion University of the Negev, Beer Sheva, Israel.
2015-2016	**Guest researcher**, Materials Science and Engineering Division, National Institute of Standards, Gaithersburg, MD, USA
2013	**Tenure**.
2011-2015	**Senior lecturer**, Department of Materials Engineering, Ben Gurion University of the Negev, Beer Sheva, Israel.
2009-2011	**Lecturer**, Department of Materials Engineering, Ben Gurion University of the Negev, Beer Sheva, Israel.
2007-2009	Head of the electron microscopy unit, Ilze Katz Institute for Nanoscience and Nanotechnology, Ben-Gurion University of the Negev, Beer Sheva, Israel.
2006-2007	Postdoctoral researcher, employed as research assistant. Department of Physics, University of Bristol, Bristol, UK.
2005-2006	Integration engineer, Yield department, "Intel Electronics", Kiryat-Gat, Israel.
2000-2005	Academic assistant, Department of Materials Engineering, Ben-Gurion University, Beer-Sheva, Israel.

- **Professional Activities** (in reverse chronological order)

(a) Positions in academic administration

2022-2024	Consultant of rector on the affairs of Russian speaking immigrants (students and researchers), Ben Gurion University of the Negev. *Founder and academic advisor of the "olim to academy program"* https://www.ynet.co.il/environment-science/article/rjl6ifcsj
2022-present	Advisor to director of BGU international, Ben Gurion University of the Negev
2018-present	Member of the undergraduate teaching committee of the engineering faculty, Ben Gurion University of the Negev
2021-present	Member of the upper (university) appointments` commission, Ben Gurion University of the Negev
2018-2021	Member of the engineering faculty appointments` commission, Ben Gurion University of the Negev
2018-present	Senate representative in the board of directors of the Ben Gurion University of the Negev
2017-2019	Member of the senate of the Ben Gurion University of the Negev
2014-2016	Member of the follow-up committee of the senate, Ben Gurion University of the Negev
2014-2016	Member of the faculty of engineering committee on the assistance for students with special needs.
2014-2015	Substitute of the appointed representative of faculty of engineering on the advancement of women in academia
2011-2017, 2018	Chair of undergraduate teaching committee, Department of Materials Engineering, Ben-Gurion University of the Negev.

(b) Professional functions outside universities/institutions

2022-present	Co-editor for the Electron Crystallography Section of the IUCrJ (International Union of Crystallography Journal). https://journals.iucr.org/m/; Journal impact factor 4.769, Q1 in crystallography (4/25); Q2 in chemistry (59/178) and materials science (107/334).
2021-present	Consultant of the Commission on Electron crystallography of the International Union of Crystallography (http://www.iucr.org/iucr/commissions/electron-crystallography)
2023	Co-organizer of the workshop on Electron Crystallography 3D ED Antwerp, Belgium 30-31.05.2025 (co organizers, Prof. Hadermann, D.r Gorelik, Dr. Gemmi, Dr. Gruene, web: https://ecaelectronsig.wordpress.com/schools/upcoming/antwerp-2023/)
2023	Co-chair of the microsymposia: "Crystallography of aperiodic structures and their approximants" IUCr XXVI congress, Melbourne, Australia.
2022	Chair of the microsymposia: "Mineralogical and inorganic crystallography" (co-chair Dr. Siidra) at the European Crystallography Meeting ECM-33, Versailles, France.
2021	Chair of the Keynote lecture session, IUCr congress, Prague, Czech Republic.
2021	Co-director (with Prof. X. Zou and Prof. L. Palatinus) of the Electron Crystallography School, satellite of the IUCr congress, Tabor, Czech Republic.
2017-2021	Chair of the Commission on Electron crystallography of the International Union of Crystallography
2011-2021	Member of the Commission on Electron crystallography of the International Union of Crystallography

2020	Elected member of the International Program Committee (IPC) of the International Union of Crystallography (IUCr) congress, Prague, Czech Republic.
2011-2019	Member of the board committee of the Israeli Society for Microscopy (http://ism.technion.ac.il/CommitteeMembers.html)
2017-2019	Secretary of the Israeli Society for Microscopy (ISM)
2019	Chair of the microsymposia: "Complex metallic alloys: periodic and non-periodic" (co-chair Dr. R. Strzalka) at the European Crystallography Meeting ECM-32, Vienne, Austria.
2019	Member of the Materials Science Scientific Committee and chair of the MS microsymposia, Israeli Society for Microscopy (ISM 53) annual meeting, Tel Aviv, Israel
2018	Chairperson (main organizer) of the 18th Israel Materials Engineering Conference (IMEC 18), Dead sea, Israel.
2018	Member of the International Advisory Board (IAB) for the 19th International Microscopy Congress (IMC19), Sydney, Australia
2017	Chair of keynote lectures session at the International Union for Crystallography congress (IUCr), Hyderabad, India
2017	Member of the scientific program committee of the Collaborative Conference on Materials Research (CCMR) 2017, Jeju Island, South Korea.
2016	Chair of the microsymposia: "New approaches in electron crystallography" (co-chair Prof. Zou) at the European Crystallography Meeting ECM-30, Basel, Switzerland.
2011-2015	Secretary of the Special Interest Group (SIG 4) on Electron Crystallography within the framework of the European Crystallography Association
2015	Chair of Materials Science program committee and chair of the MS microsymposia of the Israeli Society for Microscopy (ISM 49) annual meeting, Bar Ilan, Israel
2014	Member of the international program committee of the Electron Crystallography School in Darmstadt, Germany
2014	Chair of "Advanced Materials Characterization Techniques II" session at the 16th Israel Materials Engineering Conference IMEC16, Technion, Haifa, Israel
2013	Co-chair of "Twinning, polytypes and modular structures" microsymposia 36 at the ECM28, Warwick, UK.
2012	Co-chair of "Probing crystal structures at the nanoscale by quantitative electron crystallography" microsymposia at the European Crystallography Meeting ECM27, Bergen, Norway.
2012	Member o the organizing committee of the 46 annual meeting of the Israel Society for Microscopy, Beer Sheva, Israel,
2011	Chair of material science session in the 45th annual meeting of the Israel Society for Microscopy, Ha-goshrim, Israel
2011	Co-director of international electron crystallography school "New methods to explore structure and properties of the nano world", http://www.crystalerice.org/Erice2011/2011ec.htm, Erice, Italy
2010	Member of program committee and **co-chair** of international micro symposia "Modern Electron Diffraction – exploring structures and properties", European Crystallography Meeting ECM26, Darmstadt, Germany.
2009	Member of program committee of the international European Crystallography Meeting ECM25, Istanbul, Turkey

2008-2011 Chair of Special Interest Group (SIG 4) on Electron Crystallography within the framework of the European Crystallography Association (http://www.ecanews.org/sig_officers.php?PHPSESSID=011485afd89f9eac32012d53a065e8b2)

2008-2011 Consultant of the Commission on Electron crystallography of the International Union of Crystallography http://www.numis.northwestern.edu/IUCR_CED/members.shtml.

2006 Member of organizing committee and co-director of the international "X-El 2006 school on structure determination using combination of powder X-ray diffraction and electron crystallography methodologies". Antwerp, Belgium

(c) Reviewer for journals:

"Acta Crystallography A", "Acta Crystallography B", "Acta Materialia", "Intermetallics", "Ultramicroscopy", "Physica Status Solidi", "Journal of Applied Crystallography", "Journal of Alloys and Compounds", "Philosophical Magazine", "Proceeding for EPDIC 2010 conference", "Crystal Research and Technology", "Materials", "Crystals", "Materials Science and Engineering A", "Materials Letters", "Scripta Materialia", "Journal of Microscopy", "Scientific Reports", "Nature Communications", "Metals" – member of reviewer board

(d) Membership in professional/scientific societies

2010	MRS (Materials Research Society), USA
2005-present	European Crystallography Association
2005-present	International Union of Crystallography
2008-present	Israeli Crystallography Association
2001-present	Israeli Society for Microscopy
2001-present	European Society for Microscopy

• Educational activities

(a) Courses taught:

1) "X-ray Diffraction" – (given each fall semester to undergraduate students) course number 365.1.4441, Ben Gurion University of the Negev, Israel
2) "Introduction to Material Science 2" - (given each spring semester to undergraduate students) course number 365.1.2011, Ben Gurion University of the Negev, Israel
3) "Introduction to Electron Microscopy" - (given each fall semester to undergraduate students) course number 365.1.4611, Ben Gurion University of the Negev, Israel
4) "Advanced methods of characterization of structural defects" - (given to graduate students) course number 365.2.6955, Ben Gurion University of the Negev, Israel
5) "Characterization of a structure using a combination of X-ray diffraction and Transmission Electron Microscopy" course given to graduate students at faculty of Chemistry, Bar Ilan University, Israel
6) "Phase Transformation" - (given to graduate students), course number 365.2.6023, Ben Gurion University of the Negev, Israel

(b) Research students:

Postdoctoral fellows:

1) Dr. Susanna Syniakina – 2021-2023

Students towards PhD:

1) Shmuel Samuha – direct MSc-PhD track. The student received Negev scholarship, an Intel prize and SIG4 prize given by the Israeli Society for Microscopy (completed in 2016).
2) Gili Yaniv –Joint supervision with Prof. D. Fuks. The student received Negev-Tzin scholarship (completed in 2020).

3) Yael Templeman - Completed in 2020. Joint supervision with Dr. M. Pinkas (NRCN). The student received Negev scholarship (competed in 2020).
4) Rajashree Konar – PhD student in the department of Chemistry, Bar Ilan University. Joint supervision with Prof. Gilbert (Daniel) Nessim (completed in 2022).
5) Guy Hillel – PhD student. The student received Negev-Tzin scholarship. Started at 2021.

Students towards M.Sc.:
1) Liron Jan – internal student toward MSc (joint supervision with Prof. E. Aghion) (completed in 2011).
2) Yakov Krimer – internal student toward MSc. The student has received Special Group of Interest Award for excellent study in the field of electron crystallography. This study is performed under my supervision. The award is given by Israeli Society for Microscopy (completed in 2012).
3) Shmuel Samuha - internal student toward M.Sc. For his MSc research, the student received Ludo Frevel crystallography scholarship award for excellent study in the field of crystallography. The award is given by International Center for Diffraction Data (graduated summa cum laude in 2012).
4) Zvi Foxman– external student toward MSc. Joint supervision with Dr. M. Pinkas (NRCN) (completed in 2013).
5) Oksana Moshka (Yosupov) - internal student toward MSc. Joint supervision with Dr. M. Pinkas (NRCN) (completed in 2013).
6) Oded Sobol - internal student toward MSc (completed in 2013).
7) Avram Bram - external student toward MSc. Joint supervision with Dr. A. Venkert (NRCN) (completed in 2014).
8) Gili Yaniv (Shalev) - internal student toward MSc (completed in 2015).
9) Asaf Uziel - internal student toward MSc. Joint supervision with Prof. D. Fuks (completed in 2015).
10) Yael Templeman (Ben Arush) - external student toward MSc. Joint supervision with Dr. G. Ben-Hamu (SCE) (completed in 2016).
11) Yatir Lindzen - internal student toward MSc. Joint supervision with Dr. M. Pinkas (NRCN) (completed in 2017).
12) Guy Hillel - internal student toward MSc. Joint supervision with Prof. N. Frage and Prof. E. Zaretsky (Mechanical Engineering Dept., BGU) (completed in 2020).
13) Lior Natovich - internal student toward MSc (completed in 2020).
14) Adir Hazan - internal student, direct track to MSc, **Meitar program**. Started at 2019. Joint supervision with Prof. E. Zaretsky and Prof. N. Frage (completed in 2021).
15) Daniel Vidal- internal student toward MSc. Joint supervision with Prof. D. Fuks. (Completed in 2021).
16) Rimon Tamari - internal student toward MSc (completed in 2021).
17) Rotem Shokner - Joint supervision with Dr. M. Pinkas (NRCN) (completed in 2022).
18) Ilan Prilutsky – external student towards MSc, Started at 2022. Joint supervision with Dr. Yoav Snir (NRCN).

Students towards B.Sc. (engineering project, arranged by year of completion):
2010 Amnon Rothman (joint supervision with Dr. Dahan and Mr. Rafaelov), Shmuel Samuha
2011 Shahaf Gur Arie (joint supervision with Dr. Dahan), Oksana Yosupov (joint with Dr. Pinkas), Adi-Yahav Oved (joint with Dr. Pinkas), Oded Sobol (joint with Dr. Landau) – was awarded best student poster by the Materials Engineering Department.
2012 Yuliana Kruk (joint with Dr. Pinkas).
2013 Shahar Okavi (joint with Dr. Pinkas), Yael Ben Arush & Ella Fineberg (joint with Dr. Ben Hamu), Gili Shalev, Michael Shaykevitch, Avner White and Asaf Uziel (joint

supervision with Dr. Dahan) – were awarded best student poster by the Materials Engineering Department.
2014 Chen Yaffe (joint with Dr. Pinkas), Matan Tobias (joint with Dr. Dahan and Mr. Rafaelov).
2015 Yatir Lindzen (joint with Dr. Pinkas), Polina Metelnikov (joint with Dr. Ben Hamu), Yogev Mizrahi.
2016 Adam Sabah (joint with Dr. Dahan, Mr. Rafaelov), Manor Sasportas (joint with Prof. Fuks), Kobi Kosashvili (joint with Dr. Ben Hamu).
2018 Lior Natovitch & Guy Hillel (joint with Dr. M. Pinkas)
2019 Daniel Vidal ((joint with Prof. D. Fuks), Rimon Tamari
2020 Svetlana Fink; Shir Aizenshtein; Rotem Shokner (Joint with Dr. Pinkas and Dr. Edri (NRCN)).
2021 Doron Nir (joint with Prof. E. Zaretsky & Prof. N. Frage), Moshe Moshe, Zohar Freund (Joint with Dr. Pinkas and Dr. Edri (NRCN)).
2022 Sapir Shimon, Sigal Vradman
2023 Ron Fishov, Amit Eliyahu, Yuval Hodaya Malinker

• **Awards, Citations, Honors, Fellowships**

(a) Honors, Citation Awards (including during studies)

2017 Certificate of International Centre for Diffraction Data. Certificate awarded for contribution of crystallographic data to Powder Diffraction File.
2016 Excellence in teaching award, Ben Gurion University of the Negev.
2012 Krill prize for excellence in scientific research (provided by Wolf foundation).
2008 Certificate of International Centre for Diffraction Data. Certificate awarded for contribution of crystallographic data to Powder Diffraction File.
2005 Certificate of International Centre for Diffraction Data. Certificate awarded for contribution of crystallographic data to Powder Diffraction File.
2003 Wolf prize for excellence in doctoral research.
2001 Lev Margulis prize for excellent study in the field of electron microscopy. Prize is awarded by Israel Society for Microscopy.

• **Scientific Publications**

H index (from ISI) = 18 (average citation per item 12.27); (from GS) = 21; (i10 index=41)
Total number of citations of all articles (from ISI) = 1215; (from GS) = 1567
Total number of citations without self-citations (from ISI) = 1081

(The function of each author of an article is indicated by means a letter in superscript, as follows: principal investigator [PI], student [S], post-doctoral fellow [PD], co-researcher [C], technician/laboratory assistant [T]).

(a) Editorship of collective volumes:

1) **Editors** U. Kolb, K. Shankland, L. Meshi, A. Avilov, W.I.F. David, (2012), Title: "Uniting electron crystallography and powder diffraction", NATO science for peace and security series B: physics and biophysics, Springer, 432 pages**,** ISBN: 978-94-007-5579-6 (Print) 978-94-007-5580-2 (Online)

2) Guest editor of special issue on "Intermetallic alloys: fabrication, properties and applications" of the journal "Materials" (2018) (impact factor 2.351) http://www.mdpi.com/journal/materials/special_issues/intermetallic_alloy

3) Guest editor of special issue on "Phase Transformations and Physical Properties of Alloys" of the journal "Materials" (2021) (impact factor 2.351) https://www.mdpi.com/journal/metals/special_issues/transformations_properties

(b) Refereed chapters in collective volumes, conference proceedings:

1. Meshi L.[S], Burlaka L.[S], Talianker M.[PI], "New tetragonal phase in Al-Fe-U system", *Acta Cryst.* A61, (2005), C159. (0 citations; IF 1.878; 13/26; Q2).

2. Meshi L.[PD], Cherns D.[PI], Griffiths I.[S], Khongphetsak S.[S], Gott A.[C], Liu C.[PD], Denchitcharoen S.[PD], Shields P.[C], Wang W.[PI], Campion R.P.[PI], Novikov S.V.[C], Foxon T.[C], "The reduction of threading dislocations in GaN using a GaN nanocolumn interlayer", *Phys. Stat. Sol.(c)*, 5 (No. 6), (2008), p. 1645-1647 (7 citations; IF 1.525; 65/136; Q2).

3. Cherns D[PI], Meshi L.[PD], Griffiths I.[S], Khongphetsak S.[S], Novikov S. V.[C], Campion R. P.[PI], Foxon, C.T.[C], Liu C.[S], Shields P.[C], Wang W.N.[PI], "GaN devices based on nanorods", 16th International Conference on Microscopy of Semiconducting Materials, *Journal of Physics Conference Serie*s, v. 209(1), (2010) (9 citations)

4. Meshi L.[PI], Krimer Y.[S], Samuha S.[S], "Full structure solution of aluminides using precession electron diffraction data*"*, *Acta Cryst*. A, A67, (2011), C692 (0 citations; IF 1.878; 13/26; Q2)

5. Meshi L.[PI], Samuha S.[S], "Structure determination of intermetallics using precession electron diffraction", *Acta Cryst A*, A68 (2012), S99. (0 citations; IF 1.878; 13/26; Q2)

6. Meshi L.[PI], "Image formation in the electron microscope", ed. U. Kolb, K. Shankland, L. Meshi, A. Avilov, W.I.F. David, (2012), Title: "Uniting electron crystallography and powder diffraction", NATO science for peace and security series B: physics and biophysics, Springer.

7. Meshi L.[PI], Rafaelov G.[S], Dahan I.[C], "Identification and structure solution of ordered $U(Al_x,Si_{1-x})_3$ phase", *Acta Cryst A*, 69 (2013), S117. (0 citations; IF 1.878; 13/26; Q2).

8. Koening T.W.[S], Meshi L.[PI], Foxman Z.[S], Riesterer J.L.[C], Kennedy J.R.[C], Landau A.[PI], Mishra B.[PD], Olson D.L.[PI], "Evaluation of microstructural damage and alteration of polytypes to determine the aging of Silicon Carbide", *AIP Conf. Proc*., 1511, (2013), p. 1188-1195 (0 citations)

9. Moshkovich A.[PI], Perfilyev V.[C], Lapsker I.[T], Meshi L.[PI], Rapoport L.[PI], "Superplastic deformation of α/β brass under friction in lubrication conditions", *FEFU: School of Eng. Bulletin* 1/22 (2015) p.112-124 (0 citations)

10. Moshkovich A.[PI], Meshi L.[PI], Rapoport L.[PI], "Superplastic deformation of α/β brass under friction conditions", *Recent Advances in Mechanics and Materials in Design* (Eds. S.Gomes, S.A. Meguid) ISBN: 978-989-98832-2-2 (2015), p.245-246 (0 citations)

11. Meshi L.[PI], Yaniv G. [S], Uziel A.[S], Bram A.[S], Kiv A.E.[C], Venkert A.[C], Fuks D.[PI], "Structural changes as a function of transition metal`s (T) type in the ThT_2Al_{20} alloys", Acta Cryst. A 72(a1) (2016) p. s236-s236 (0 citations; IF 1.878; 13/26; Q2)

12. Meshi L.[PI], Yaniv G.[S], Sasportas M.[S], Fuks D.[PI], "Structure of A-T-Al aluminides (A=actinide/lanthanide; T=transition metals)", *Acta Cryst. A* 70 (2017) C906 (0 citations; IF 1.96; 13/26; Q2)

13. Feng WC[S], Kim JY[S], Wang XZ[S], Calcaterra H[S], Qu ZB[S], Meshi L[PI]; Kotov N.[PI], "Chiral semiconductor helices at the mesoscale", *Abstracts of papers of the American Chem. Soc*. 253 (2017) 697 (0 citations)

14. Meshi L[PI], "Electron Crystallography – seeing is believing", *Materials Structure in Chemistry, Biology, Physics and Technology*, 26 (2019) no 2, 101-103 (0 citations)

15. Meshi L.[PI], "Structure determination of nano-precipitates in metallic alloys using electron crystallography methods", *Acta Cryst*. A 75, (2019) E400 (0 citations; IF 1.96; 13/26; Q2)

16. Meshi L.[PI], Tamari R.[S], Grushko B.[C], "Crystal structure of the $Al_{78}Mn_{17.5}Pt_{4.5}$ phase as revealed by electron crystallography", *Acta Cryst*. A 77 (2021) C82 (0 citations; IF 1.96; 13/26; Q2)

(c) Refereed articles and letters in scientific journals:

1. Meshi L.[S], Zenou V.Y.[S], Ezersky V.[T], Munitz A.[C], Talianker M.[PI], "Identification of the structure of a new Al-Fe-U phase by electron microdiffraction technique", *J. of Alloys and Compounds*, 347, (2002), p. 178-183 (17 citations; IF 4.65; 8/79; Q1).
2. Meshi L.[S], Talianker M.[PI], Munitz A.[C], "Determination of the structure of UFe_2Al_{10} compound", *J. of Alloys and Compounds*, 370, (2004), p. 206-210 (16 citations; IF 4.65; 8/79; Q1).
3. Meshi L.[S], Ezersky V.[T], Venkert A.[C], Talianker M.[PI], "The structure of ternary aluminide $ThFe_2Al_{10}$", *Intermetallics*, 13, (2005), p. 792-795 (13 citations; IF 3.398; 12/79; Q1).
4. Meshi L.[S], Zenou V.[S], Ezersky V.[T], Munitz A.[C], Talianker M.[PI], "Tetragonal phase in Al-rich region of U-Fe-Al system", *J. of Alloys and Compounds*, 402, (2005), p. 84-88 (6 citations; IF 4.65; 8/79; Q1).
5. Meshi L.[S], Munitz A.[C], Talianker M.[PI], "Determination of the structure of a new tetragonal U_2FeAl_{20} phase", *J. of Alloys and Compounds*, 460, (2008), p. 196-200 (2 citations; IF 4.65; 8/79; Q1; Q1).
6. Cherns D.[PI], Meshi L.[PD], Griffiths I.[S], Khongphetsak S.[S], Novikov S.V.[C], Farley N.[S], Campion R.P.[PI], Foxon C.T.[C], "Defect reduction in GaN/(0001)sapphire films grown by molecular-beam epitaxy using nanocolumn intermediate layers", *APL*, 92, i. 12, (2008), 121902 (57 citations; IF 3.597; 37/155; Q1).
7. Cherns D.[PI], Meshi L.[PD], Griffiths I.[S], Khongphetsak S.[S], Novikov S.V.[C], Farley N.[S], Campion R.P.[PI], Foxon C.T.[C], "Defect-controlled growth of GaN nanorods on (0001)sapphire by molecular beam epitaxy", *APL*, 93, (2008), 111911 (23 citations; IF 3.597; 37/155; Q1).
8. Wang W.N.[PI], Liu C.[PD], Gott A.[C], Denchitcharoen S.[PD], Shields P.[C], Meshi L.[PD], Khongphetsak S.[S], Griffiths I.[S], Cherns D.[PI], Campion R.[PI], "Nano-pendeo GaN growth of light emitting devices on silicon", *J. Light & Vis. Env*., 32 (2), (2008), p. 187. (0 citations)
9. Neyman A.[S], Meshi L.[PI], Zeiri L.[T], Weinstock I.[PI], "Direct imaging of the ligand monolayer on an anion protected metal nanoparticle through cryogenic trapping of its solution state structure", *JACS* 130 (49), (2008), p. 16480-16481 (41 citations; IF 14.695; 12/172; Q1).
10. Wang Y.[PD], Neyman A.[S], Arkhangelsky E.[C], Gitis V.[C], Meshi L.[PI], Weinstock I.[PI], "Self-assembly and structure of directly imaged inorganic-anion monolayers on a gold nanoparticle", *JACS* 131 (47), (2009), p. 17412-17422 (74 citations; IF 14.695; 12/172; Q1).
11. Meshi L.[PI], Grushko B.[C], Ezersky V.[T], "Identification of a new hexagonal phase in the Al-Cu-Re system", *J. of Alloys and Compounds*, 488, i. 1, (2009), p. 108-111 (3 citations; IF 4.65; 8/79; Q1).
12. Meshi L.[PI], Ezersky V.[T], Kapush D.[S], Grushko B.[PI], "Crystal structure of the Al_2CuIr phase", *J. of Alloys and Compounds*, 496, (2010), p. 208-211 (2 citations; IF 4.65; 8/79; Q1).
13. Fita I.[C], Markovich V.[C], Wisniewski A.[C], Mogilyansky D.[C], Puzniak R.[C], Iwanowski P.[C], Meshi L.[PI], Titelman L.[C], Varyukhin V.N.[C], Gorodetsky G.[PI], "Size-dependent spin state and ferromagnetism in $La_{0.8}Ca_{0.2}CoO_3$ nanoparticles", *J. of Appl. Physics*, 108 (1), (2010), p.1-9 (16 citations; IF 2.328; 59/148; Q2).
14. Meshi L.[PI], Munitz A.[PI], "Liquidus projection of Al rich corner of the Al-Fe-U phase diagram", *Intermetallics*, 18, (2010), p. 2119-2123 (1 citation; IF 3.398; 12/79; Q1).
15. Zenou V.Y.[S], Ezersky V.[T], Meshi L.[PI], Fuks D.[PI], Talianker M.[PI], "New orthorhombic phase in U-Fe-Al-Si system", *J. of Alloys and Compounds*, 509 (2011), p. 206-209 (2 citations; IF 4.65; 8/79; Q1).
16. Meshi L.[PI], Samuha S.[S], Cohen S.[C], Laikhtman A.[C], Moshkovich A.[C], Perfilyev V.[C], Rapoport L.[PI]," Dislocation structure and hardness of surface layers under friction

of copper in different lubricant conditions", *Acta Mater*., 59 (2011), p. 342-348 (35 citations; IF 7.293; 1/76; Q1).

17. Zenou V.Y.[S], Meshi L.[PI], Fuks D.[PI], " Why UFe_xAl_{12-x} phase does not crystallize with $ThMn_{12}$ structure type, when x=2?", *Intermetallics*, 19, i. 5, (2011), p. 713-720 (9 citations; IF 3.398; 12/79; Q1).
18. Meshi L.[PI], Samuha S.[S], Kapush D.[S], Pavlyuchkov D.[S], Grushko B.[PI], "New complex intermetallic in the Al-Rh-Ru alloy system", *J. of Alloys and Compounds*, 509, i.23, (2011), p. 6551-6555 (8 citations; IF 4.65; 8/79; Q1).
19. Grushko B.[PI], Kapush D.[S], Velikanova T.Ya.[S], Samuha S.[S], Meshi L.[PI], "An investigation of the Al-Rh-Ru phase diagram above 50 at.% Al", *J. of Alloys and Compounds*, 509, (2011), p. 8018-8021 (6 citations; IF 4.65; 8/79; Q1).
20. Moshkovich A.[C], Perfilyev V.[C], Meshi L.[PI], Samuha S.[S], Cohen S.[C], Cohen H.[S], Laikhtman A.[C], Rapoport L.[PI], "Friction, wear and structure of Cu samples in the lubricated steady friction state", *Tribology International*, 46, (2012), p.154-160 (17 citations; IF 3.517; 18/129; Q1).
21. Remennik S.[S], Xu C.[PD], Brant R.[S], Meshi L.[PI], Shechtman D.[PI], "Crystal structure of a new quaternary Mg-Zn-Ca-Li phase", *Intermetallic*s, 22, (2012), p. 62-67 (1 citations; IF 3.398; 12/79; Q1).
22. Grushko B.[PI], Kapush D.[S], Meshi L.[PI], "A study of the Al-rich part of the Al-Ni-Pt alloy system", *J. of Alloys and Compounds*, 514, (2012), p. 60-63 (8 citations; IF 4.65; 8/79; Q1).
23. Neyman A.[S], Wang Y.[PD], Sharet S.[S], Varsano N.[S], Botar B.[C], Kögerler P.[C], Meshi L.[PI], Weinstock I.A.[PI], "Polyoxometalate-directed assembly of water-soluble AgCl nanocubes", *Chemical Communications* 48, i. 16, (2012), p. 2207 – 2209 (11 citations; IF 6.164; 32/172; Q1).
24. Sharet S.[S], Sanders E.[S], Wang Y.[PD], Neyman A.[S], Zeiri O.[S], Meshi L.[PI], Weinstock I.[PI], "Orientations of Polyoxometalate Anions on Gold Nanoparticles", *Dalton Transactions* 41 (2012), p. 9849-9851. **Highlights:** on the inside cover of the journal. Selected as a "**Hot Article**" by the editors, and written up for the Dalton Trans. blog by J. Newton (15 citations; IF 4.052; 7/45; Q1).
25. Wang Y.[PD], Zeiri O.[S], Meshi L.[PI], Stellacci F.[PI], Weinstock I.A.[PI], "Regioselective placement of alkethiolate domains on tetrahedral and octahedral gold nanocrystals", *Chemical Communications* 48 (78), (2012), p. 9765-9767 (9 citations; IF 6.164; 32/172; Q1).
26. Foxman Z.[S], Sobol. O.[S], Pinkas M.[PI], Landau A.[C], Hähner P.[C], Krsjak V.[C], Meshi L.[PI], "Microstructural evolution of Cr-rich ODS steels as a function of heat treatment at 475°C", *Metallography, Microstructure and Analysis* 1 (2012), 158-164 (2 citations)
27. Samuha S.[S], Uvarov V.[C], Meshi L.[PI], "Study of ternary complex Al-Mg-Ag intermetallides using precession electron diffraction", *Zeitschrift fuer Kristall.* 228, (2013), p.59-62 (2 citations; IF 1.408; 17/26; Q3).
28. Greenberg Y.[S], Remennik S.[T], Cohen S.[C], Ritter D.[PI], Meshi L.[PI], "Characterization of structural defects in highly mismatched GaP nanowires", *Materials Letters* 113, (2013), p. 38-41 (0 citations; IF 2.269; 61/251; Q1).
29. Grushko B.[PI], Kapush D.[S], Samuha S.[S], Meshi L.[PI], "A study of the Al-Pd-Pt alloy system", *J. of Alloys and Compounds* 600 (2014), p. 125-129 (6 citations; IF 4.65; 8/79; Q1).
30. Rafailov G.[S], Dahan I.[C], Meshi L.[PI], "New ordered phase in the quasi-binary UAl_3-USi_3 system", *Acta Cryst. B,* 70(3), (2014), p. 580-585 (13 citations; IF 6.732; 1/26; Q1).
31. Samuha S.[S], Krimer Y.[S], Meshi L.[PI]," Strategies for full structure solution of intermetallic compounds using Precession Electron Diffraction zonal data", *J. Appl. Cryst.* 47, (2014), p. 1032-1041 (6 citations; IF 2.867; 9/26; Q2).

32. Samuha S.[S], Mugnaioli E.[PD], Grushko B.[C], Kolb U.[C], Meshi L.[PI], "Atomic structure solution of the complex quasicrystal approximant $Al_{77}Rh_{15}Ru_8$ from electron diffraction data", *Acta Cryst. B*, 70 (2014), p. 999-1005 (12 citations; IF 6.732; 1/26; Q1).
33. Samuha S.[S], Pavlyuchkov D.[S], Zaikina O.V.[S], Grushko B.[C], Meshi L.[PI], "Crystal structures of the Al-Ti-Pt τ_5 and τ_6 phases solved by zonal Precession Electron Diffraction", *J. of Alloys and Comp*., 621, (2015), p. 47-52 (6 citations; IF 4.65; 8/79; Q1).
34. Aghion E.[PI], Jan L.[S], Meshi L.[PI], Goldman J.[C], "Increased corrosion resistance of the AZ80 Mg alloy by rapid solidification", *Journal of Biomedical Materials Research* B, 103 (8) (2015), p. 1543-1548 (10 citations; IF 2.674; 29/80; Q2).
35. Rabkin A.[S], Samuha S.[S], Abutbul R.E.[S], Ezersky V.[T], Meshi L.[PI], Golan Y.[PI], "New nanocrystalline materials: a previously unknown simple cubic phase in the SnS binary system", *Nano letters*, 15 (3), (2015), p. 2174-2179 (104 citations; IF 12.279; 19/293; Q1).
36. Bram A.I.[S], Venkert A.[C], Meshi L.[PI], "Characterization of new alluminides found in the ThT_2Al_{20} alloys (where T=Ti, V, Mn)", *J. of Alloys and Comp*. 641, (2015), p.1-6 (17 citations; IF 4.65; 8/79; Q1).
37. Salomon S.[S], Hamann S.[S], Decker P.[S], Savan A.[S], Meshi L.[PI], Ludwig L.[PI], "Combinatorial synthesis and high-throughput characterization of the thin film materials system Co-Mn-Ge: composition, structure and magnetic properties", *Physica Status Solidi A* 212 (9), (2015), p. 1969-1974 (6 citations; IF 1.606; 91/148; Q3).
38. Kapush D.[S], Samuha S.[S], Meshi L.[PI], Velikanova T.Ya[C], Grushko B.[PI], "Formation of complex intermetallics in the Al-rich part of Al−Pt−Ru", *J. of Phase Equillibria and Diffusion* 36 (4), (2015), p. 327-332 (4 citations; IF 1.421; 36/76; Q2).
39. Pinkas M.[PI], Foxman Z.[S], Hähner P.[C], Meshi L.[PI], "Sensitivity of thermo-electric power measurements to α-α' phase separation in Cr-rich oxide dispersion strengthened steels", *J. of Materials Science* 50(13), (2015), p. 4629-4635 (5 citations; IF 3.442; 82/293; Q2).
40. Rabin D.[S], Shneck R.Z.[PI], Rafailov G.[C], Dahan I.[C], Meshi L.[PI], Brosh E.[PI], "Thermodynamic modeling of Al-U-X (X=Si, Zr)", *J. of Nuclear Materials*, 464, (2015), p. 170-184 (9 citations; IF 2.547; 2/34; Q1).
41. Moshka O.[S], Pinkas M.[PI], Brosh E.[C], Ezersky V.[T], Meshi L.[PI], "Addressing the issue of precipitates in maraging steels – Unambiguous Answer", *Mat. Sci. & Eng. A*, 638, (2015), p. 232-239 (42 citations; IF 5.234; 8/80).
42. Shmulevitsh M.[S], Meshi L.[PI], Pinkas M.[PI], Shneck R.Z.[PI], " Elastic consideration of the precipitation in model alloys of maraging steels: theory and experimental validation", *J. of Materials Science* 50(14), (2015), p. 4970-4979 (9 citations; IF 3.442; 82/293; Q2).
43. Grushko B.[PI], Samuha S.[S], Meshi L.[PI], "A study of the Al-Pt-Ir phase diagram", *J. of Alloys and Comp*. 646 (2015), p. 873-878 (3 citations; IF 4.65; 8/79; Q1).
44. Uziel A.[S], Bram A.I.[S], Venkert A.[C], Kiv A.E.[C], Fuks D.[PI], Meshi L.[PI], "Abrupt symmetry decrease in the ThT_2Al_{20} alloys (T= 3d transition metal)", *J. of Alloys and Comp*. 648 (2015), p. 353-359 (12 citations; IF 4.65; 8/79; Q1).
45. Pinkas M.[PI], Moshka O.[S], Okavi S.[S], Shmuelevitsh M.[S], Gelbstein Y.[C], Froumin N.[C], Meshi L.[PI], "The origin of the effect of aging on the thermoelectric power of maraging C250 Steel", *J. of Materials Science* 50 (23), (2015), p. 7698-7704 (1 citations; IF 3.442; 82/293; Q2).
46. Sobol O.[S], Gadot E.[S], Wang Y.[PD], Weinstock I.[PI], Meshi L.[PI], "Addressing a "Black Box" of bottom-up synthesis: revealing the structures of growing colloidal-nanocrystal nuclei", *ACS Inorganic Chemistry* 54 (i.22), (2015), p.10521-10523 (1 citations; IF 4.85; 4/45; Q1).

47. Yaniv G.[S], Meshi L.[PI], "Crystal structure of the $Th_2Ni_{10}Al_{15}$ phase solved using electron diffraction tomography", *J. of Alloys and Comp*. 660 (2016), p. 496-502 (3 citations; IF 4.65; 8/79; Q1).
48. Kiv A.[PI], Mykytenko N.[S], Fuks D.[PI], Dahan I.[C], Meshi L.[PI], "Molecular Dynamics probing of the energy spectrum of particles in radiation stimulated processes", *Inter. J. of Adv. Comp. Tech*. (*IJACT*) 4 (6) (2016), p. 81-86 (1 citations; IF 0.453; Q3).
49. Samuha S.[S], Grushko B.[C], Meshi L.[PI], "Refinement of the Al-rich part of the Al-Cu-Re phase diagram and atomic model of the ternary $Al_{6.2}Cu_2Re$ phase", *J. of Alloys and Comp*. 670 (2016), p. 18-24 (2 citations; IF 4.65; 8/79; Q1).
50. Hitz E.[S], Wan L.Y.[S], Patel A.[C], Xu Y.[S], Meshi L.[C], Dai J.Q.[S], Chen Y.A.[S], Lu A.J.[C], Davydov A.V.[PI], Hu L.B.[PI], "Electrochemical intercalation of lithium ions into $NbSe_2$ nanosheets", *ACS applied materials and interfaces* 8 (18) (2016), p. 11390-11395 (39 citations; IF 8.456; 27/293; Q1).
51. Bharathi Kamala K.[PD], Tan H.[PD], Takeuchi S.[PD], Meshi L.[C], Shen H.[PD], Shin J.[S], Takeuchi I.[PI], Bendersky L.A.[PI], "Effect of oxygen pressure on structure and ionic conductivity of epitaxial $Li_{0.33}La_{0.55}TiO_3$ solid electrolyte thin films produced by pulsed laser deposition", *RSC Advances* 6 (2016), p. 61974-61983 (12 citations; IF 3.049, 68/172; Q2).
52. Zenou V.Y.[PI], Rafailov G.[C], Dahan I.[C], Kiv A.[C], Meshi L.[PI], Fuks D.[PI], "Ordered $U(Al,Si)_3$ phase: structure and bonding", *J. of Alloys and Comp*. 690 (2017), p. 884-889 (7 citations; IF 4.65; 8/79; Q1).
53. Butler J.E.[PI], Vikharev A.[C], Gorbachev A.[C], Lobaev M.[C], Muchnikov A.[C], Radischev D.[C], Isaev V.[C], Chernov V.[C], Bogdanov S.[C], Drozdov M.[C], Demidov E.[C], Surovegina E.[C], Shashkin V.[C], Davidov A.[PI], Tan H.[C], Meshi L.[C], Pakpour-Tabrizi A.C.[C], Hicks M.L.[C], Jackman R.B.[PI], "Nanometric diamond delta doping with Boron", *Phys. Status Solidi RRL*, 11(1) (2017) 1600329 (24 citations; IF 3.729; 30/148; Q1).
54. Feng W.[S], Kim J.Y.[PD], Wang X.[PD], Calcaterra H.A.[PD], Meshi L.[PI], Kotov N.A.[PI], "Assembly of mesoscale helices with near- unity enantiomeric excess and light-matter interactions for chiral semiconductors", *Science Advances* 3 (3), (2017), e1601159, DOI: 10.1126/sciadv.1601159 (102 citations; IF 14.98; 4/69; Q1).
55. Munitz A.[PI], Meshi L.[PI], Kaufman M.J.[C], "Heat treatments` effects on the microstructure and mechanical properties of an equiatomic Al-Cr-Fe-Mn-Ni high entropy alloy", *Materials Science & Engineering* A, 689, (2017), p. 384-394 (45 citations; IF 5.234; 8/80).
56. Templeman Y.[S], Ben Hamu G.[C], Meshi L.[PI], "Friction stir welded AM50 and AZ31 Mg alloys: microstructural evolution and improved corrosion resistance", *Materials Characterization* 126, (2017), p.86-95 (21 citations; IF 3.562; 9/79; Q1).
57. Linden Y.[S], Pinkas M.[C], Munitz A.[C], Meshi L.[PI], "Long-period antiphase domains and short-range order in a B2 matrix of the AlCoCrFeNi high-entropy alloy", *Scripta Materialia* 139, (2017), p. 49-52 (49 citations; IF 4.539; 4/76; Q1).
58. Meshi L.[PI], Samuha S.[S], "Characterization of atomic structures of nanosized intermetallic compounds using electron diffraction methods", *Advanced Materials*, 30 (41) 1706704 (2018) (3 citations; IF 21.95; 8/285; Q1).
59. Meshi L.[PI], Yaniv G.[S], Horak P.[S], Vacik J.[C], Mykytenko N.[S], Rafailov G.[C], Dahan I.[C], Fuks D.[C], Kiv A.[C], "Radiation resistance of the $U(Al,Si)_3$ alloy: ion-induced disordering", *Materials* 11, (2018), p. 228-238 (4 citations; IF 2.654; Q1).
60. Yaniv G.[S], Fuks D.[C], Meshi L.[PI], "Structure and peculiarities of bonding in the Al-rich A-Mn-Al alloys (where A=Y, Gd, Th and U)", *Intermetallics*, 100, (2018), p. 44-51 (2 citations; IF 3.398; 12/79; Q1).
61. Metalnikov P.[S], Ben Hamu G.[PI], Templeman Y.[S], Shin K.S.[C], Meshi L.[PI], "The relation between Mn additions, microstructure and corrosion behavior of new

wrought Mg-5Al alloys, *Materials Characterization*, 145, (2018), p. 101-115 (13 citations; IF 3.562; 9/79; Q1).

62. Meshi L.[PI], Linden Y.[S], Munitz A.[C], Salhov S.[C], Pinkas M.[C], "Retardation of the sigma phase formation in the AlCoCrFeNi multi component alloy", *Materials Characterization*, 148, (2019), p.171-177 (6 citations; IF 3.562; 9/79; Q1).
63. Kavetskyy T.[PI], Liedke M.O.[C], Butterling M.[C], Wagner A.[C], Krause-Rehberg R.[C], Sausa O.[C], Meshi L.[C], Dahan I.[C], Vacik J.[C], Horak P.[C], Fuks D.[C], Mykytenko N.[S], Kiv A.[PI], "Formation of heavy clusters in ion irradiated compounds", *Vacuum*, 164, (2019), p. 149-152 (1 citations; IF 2.515; 134/293; Q2)
64. Yaniv G.[S], Fuks D.[C], Meshi L.[PI], "Explanation of structural differences and similarities between the AT_2Al_{10} phases (where A=actinide, lanthanide or rare earth element and T=transition metal)", *Zeitschrift fuer Kristallographie* 234(9), (2019) p. 595-603 (2 citation; IF 1.408; 17/26; Q3).
65. Ratzker B.[S], Wagner A.[S], Sokol M.[S], Meshi L.[PI], Kalabukhov S.[T], Frage N.[PI], "Deformation in nanocrystalline ceramics: a microstructural study of $MgAl_2O_4$", *Acta Materialia* 183 (2020) p. 137-144 (6 citations; IF 7.293; 1/76; Q1).
66. Templeman Y.[S], Rogozhkin S.[C], Khomich A.[T], Nikitin A.[T], Pinkas M.[PI], Meshi L.[PI], "Characterization of nano-sized particles in 14%Cr oxide dispersion strengthened (ODS) steel using classical and frontier microscopy methods", *Materials Characterization*, 160, (2020), 110075 (1 citations; IF 3.562; 9/79; Q1).
67. Kumar S.[S], Aziz T.[S], Kumar S.[S], Riyajuddin S.[S], Yaniv G.[S], Meshi L.[PI], Nessim G.D.[PI], Ghosh K.[PI], "3-Dimensional graphene decorated Copper-Phosphide (Cu3P@3DG) heterostructure as effective electrode for supercapacitor", *Frontiers in Materials*, 7, (2020), article 30 (4 citations; IF 2.689; 119/293; Q2).
68. Hillel G.[S], Meshi L.[PI], Kalabukhov S.[T], Frage N.[PI], Zaretsky E.B.[PI], "Shock wave characterization of precipitate strengthening of PH 13–8 Mo stainless steel", *Acta Materialia*, 187, (2020), p. 176-185 (0 citations; IF 7.293; 1/76; Q1).
69. Yaniv G.[S], Vidal D.[S], Fuks D.[PI], Meshi L.[PI], "Bonding and stability of ternary structures in the CeT_2Al_{20} (T=Ta, W, Re) and YRe_2Al_{20} alloys", *Metals*, 10(4), (2020), article 422 (0 citations; IF 2.259; 18/76; Q1)
70. Yaniv G.[S], Meshi L.[PI], "Structure characterization of novel alluminides in the Nd-Re-Al system by electron crystallography methods", *Materials Characterization*, 168, (2020), 110562 (0 citations; IF 3.562; 9/79; Q1).
71. Natovitz L.[S], Edry I.[C], Meshi L.[PI], "Novel $AlCrFeNiNb_{0.3}$ high entropy alloy: microstructure, properties and an unknown Nb-rich intermetallide", *Intermetallics*, 127, (2020), 106965 (0 citations; IF 3.398; 12/79; Q1).
72. Hillel G.[S], Natovitz L.[S], Salhov S.[C], Haroush S.[C], Pinkas M.[PI], Meshi L.[PI], "Understanding the role of the constituting elements of the AlCoCrFeNi high entropy alloy through the investigation of quaternary alloys", *Metals*, 10, (2020), 1275 (0 citations; IF 2.259; 18/76; Q1).
73. Rogozhkin S.V.[PI], Shutov A.S.[S], Khomich A.A.[T], Nikitin A.A.[T], Lukyanchuk A.A.[C], Raznitsyn O.A.[C], Meshi L.[C], "Atom Probe analysis of high entropy alloy AlCoCrFeNi", *Physics of atomic nuclei*, 83 (10), (2020), 1-11 (0 citations), translated from Russian, published in "Yadernaya Fizika i Inzhiniring".
74. Templeman Y.[S], Pinkas M.[PI], Brosh E.[C], Strumza E.[S], Hayun S.[PI], Meshi L.[PI], "Kinetics of the α-α' phase separation in a 14%Cr Oxide Dispersion Steel at intermediate temperatures", *Materials Letters*, 285, (2021), 129088. (0 citations; IF 2.269; 61/251; Q1).
75. Tamari R.[S], Grushko B.[C], Meshi L.[PI], "Structural study of $Al_{78}Mn_{17.5}Pt_{4.5}$ and (re)constitution of the Al–Mn–Pt system in its vicinity", *Journal of Alloys and Compounds*, 861, (2021), 158328 (0 citations; IF 4.65; 8/79; Q1).
76. Hazan A.[S], Hillel G.[S], Kalabukhov S.[T], Frage N.[C], Zaretsky E.B.[PI], Meshi L.[PI], "Shock-induced twinning in polycrystalline vanadium: I. Twinning stress", *Materials Characterization* 175, (2021), 111061 (0 citations; IF 3.562; 9/79; Q1).

77. Hazan A.[S], Hillel G.[S], Kalabukhov S.[T], Frage N.[C], Zaretsky E.B.[PI], Meshi L.[PI], "Shock-induced twinning in polycrystalline vanadium: II. Surface layer", *Materials Characterization* 175, (2021), 111062 (0 citations; IF 3.562; 9/79; Q1).
78. Melamed Y.[S], Maity N.[PD], Meshi L.[PI], Eliaz N.[PI], "Electroplating of pure Aluminum from [HMIm]{TFSI]-$AlCl_3$ room-temperature ionic liquid", *Coatings* 11(11) (2021) 1414 DOI: 10.3390/coatings11111414 (0 citations; IF 2.881; 10/21; Q2).
79. Samuha S.[PI], Tamari R.[S], Grushko B.[C], Meshi L.[PI], "Structure solution of the $Al_{69.2}Cu_{20}Cr_{10.8}$ ϕ-phase", *Journal of Applied Crystallography* 55 (2022) 74-79 https://doi.org/10.1107/S1600576721011961 (0 citations; IF 3.304; 7/25; Q2).
80. Vidal D.[S], Hillel G.[S], Edry I.[C], Pinkas M.[C], Fuks D.[PI], Meshi L.[PI], "Influence of alloying elements and the state of order on the formation of antiphase boundaries in B2 phases", *Intermetallics* 141 (2022) 107434 https://doi.org/10.1016/j.intermet.2021.107434 (0 citations; IF 3.398; 12/79; Q1).
81. Konar R.[S], Tamari R.[S], Teblum E.[C], Nessim G.D.[PI], Meshi L.[PI], "In-depth characterization of stacking faults forming during the growth of Transition-Metal Di-Chalcogenides (TMDCs) by ambient-pressure-CVD", *Materials Characterization* 184 (2022) 111666 https://doi.org/10.1016/j.matchar.2021.111666 (0 citations; IF 3.562; 9/79; Q1).
82. Sher A.[S], Meshi L.[C], Kalabukhov S.[T], Frage N.[C], Zaretsky E.[PI], "Shock wave determination of temperature dependence of twinning stress in vanadium and tantalum", *Material Science and Engineering A* 833 (2022) 142537 https://doi.org/10.1016/j.msea.2021.142537. (0 citations; IF 5.234; 8/80; Q1).
83. Tamari R.[S], Grushko B.[C], Meshi L.[PI], "Electron diffraction study of the space group variation in the Al-Mn-Pt T-phase", *Symmetry* 14 (2022) 38 https://doi.org/10.3390/sym14010038 (0 citations; IF 2.713 33/72; Q2).
84. Hillel G.[S], Meshi L.[C], Shimon S.[S], Kalabukhov S.[C], Frage N.[C], Zaretsky E.[PI], "Shock wave study of precipitation hardening of beryllium copper", *Materials Science and Engineering A*, 834 (2022) 142599 https://doi.org/10.1016/j.msea.2022.142599 (0 citations; IF 5.234; 8/80; Q1).
85. Hillel G.[S], Kalabukhov S.[C], Frage N.[C], Zaretsky E.[PI], Meshi L.[PI], "Direct observation of initial stages of precipitation hardening process in commercial Al 6061 alloy", *Journal of Materials Science*, 57 (2022) 10395-10406 DOI: https://doi.org/10.1007/s10853-022-07341-2 (0 citations; IF 3.442; 82/293; Q2)
86. Samuha S.[PI], Templeman Y.[S], Haroush S.[C], Guttmann G.M.[C], Pinkas M.[PI], Meshi L.[PI], "A crystallographic study of the deformation mechanisms during Small Punch Testing of 14wt%Cr oxide dispersion steel", *Journal of Materials Science*, 57 (2022) 11969-11982.DOI:https://doi.org/10.1007/s10853-022-07337-y (0 citations; IF 3.442; 82/293; Q2)
87. Shockner R.[S], Syniakina S.[PD], Richter V.[C], Girshevitz O.[C], Edry I.[C], Pinkas M.[PI], Meshi L.[PI], "Ion irradiation effect on B2 single phase AlFeCoNi alloy", *Materials Characterization* 193 (2022) 112299 (0 citations; IF 3.562; 9/79; Q1).
88. Grushko B.[PI], Meshi L.[PI], "The Al-Co-Pd R-phase identity", J. of Phase Equilibria and Diffusion, 43 (5) (2023)529-532.
89. Shockner R.[S], Edry I.[C], Pinkas M.[PI], Meshi L.[PI], "Systematic study of the effect of Cr on the microstructure, phase content and hardness of the $AlCr_xFeCoNi$ alloys", *Journal of Alloys and Compounds* 193 (2023) 112299

• Lectures and Presentations at Meetings and Invited Seminars:

(a) Invited lectures at conferences/meetings

2006 Two invited lectures at the international "X-El 2006 School on structure determination using combination of powder X-ray diffraction and electron crystallography methodologies". Antwerp, Belgium. **Topics:** 1) "Examples

of determination of the structure of intermetallic compounds using combination of electron crystallography and X-ray powder diffraction methods"; 2) "Indexing of the electron diffraction patterns".

2009 Invited lecture at the 43rd annual meeting of the Israel Society for Microscopy, Bar-Ilan University, Israel. **Topic:** "Modern Techniques in Electron Crystallography".

2010 Invited lecture at the 44rd annual meeting of the Israel Society for Microscopy, Tel Aviv University, Israel. **Topic**: "Determination of the Crystal Structure of Intermetallic Compounds Combining Methods of Electron Crystallography and X-Ray Powder Diffraction".

2011 Invited lecture at the international Electron Crystallography school "New methods to explore structure and properties of the nano world", Erice, Italy. **Topic:** "Image formation in the electron microscope".

2012 Invited lecture at the European Crystallography Meeting ECM27, Bergen, Norway. **Topic**: "Structure solution of intermetallic compounds using PED data".

2014 Invited lecture at the 16-th Israel Materials Conference (IMEC 16), Technion, Haifa, Israel. **Topic**: "Full structure solution of intermetallic compounds using solely electron diffraction data".

2014 Invited lecture at the international Electron Crystallography School (ECS), Darmstadt, Germany. **Topic**: "Introduction to crystallography".

2014 Invited lecture at the E-MRS (European Materials Research Society) conference, Warsaw, Poland. **Topic**: "Structure solution of complex intermetallics using solely electron diffraction data".

2016 Invited lecture at the 50 Jubilee meeting of the Israel Society for Microscopy, Technion, Haifa, Israel. **Topic**: "Study of the ternary Th-T-Al phases"

2016 Invited lecture at the CC3DMR 2016, Incheon/Seoul, South Korea. **Topic**: "Structure determination of aluminides applying state of the art electron crystallography methods".

2017 Invited lecture at the inauguration of the double corrected TEM at the University of Limerick, Limerick, Ireland. **Topic**: "Electron crystallography – a tool for solution of metallurgical riddles".

2018 Invited lecture at the UK-Israel workshop on Nano-scale crystallography for Bio and Materials Research, Tel Aviv University, Israel. **Topic**: "Electron crystallography as a tool for structure solution of nanosized materials".

2018 Invited lecture at the Erice Electron Crystallography School, Erice, Italy. **Topic**: "TEM sample preparation methods".

2018 Invited lecture at the RCEM conference, Moscow, Russia. **Topic**: "Study of the order of the domains in the matrix of the Al-Co-Cr-Fe-Ni high entropy alloy".

2018 Invited lecture at the Italian-Israeli workshop on "Materials and Technologies for Industrial Innovation", Catania, Italy. **Topic**: "Solution of metallurgical riddles by electron crystallography".

2019 Invited lecture at Isranalytica 2019, Tel Aviv, Israel. **Topic**: "Exploring the nano world by electron crystallography".

2019 Invited lecture at 32nd ECM (European Crystallography Meeting), Vienna, Austria. **Topic**: "Structure determination of nano-precipitates in metallic alloys using electron crystallography methods"

2020 Invited lecture (given on Zoom platform) at the RCEM School, Moscow, Russia. **Topic**: "Structure solution of complex aluminides using electron crystallography methods".

2020 Invited lecture (panel-member) at the Workshop on electron crystallography, given at Webex platform, host University of Ulm,

Germany. **Topic**: "Application of Electron Crystallography in the field of metallurgy". https://www.uni-ulm.de/en/einrichtungen/hrem/christmas-elec-crystall/christmas-elec-crystall/

2021 Invited lecture at the Electron Crystallography School "3D Electron Diffraction/Micro ED uniting small molecule and macromolecular crystallography", satellite of the IUCr congress, Prague, Czech Republic. **Topic**: "Unit cell and space group determination from ED and CBED".

2021 Invited lecture at the 19-th Israel Materials Conference (IMEC 19), Jerusalem, Israel. **Topic**: "Unambiguous structure determination of intermetallics using electron crystallography methods".

2022 Invited lecture at the *Eldico webinar* series. **Topic**: "Characterization of nano-sized intermetallics in Al-alloys and in high entropy alloys".

(b) Presentations at conferences/meetings

2001 35th annual meeting of the Israel Society for Microscopy, Haifa, Israel (oral presentation: "TEM investigation of new ternary phase in Al-Fe-U alloy" L. Meshi[S], V. Ezersky[T], V.Y. Zenou[S], A. Munitz[C], M. Talianker[PI]).

2001 10-th Israel Materials Engineering Conference – IMEC X, Dead Sea, Israel (poster presentation: "Investigation of the structure of new ternary phase in Al-Fe-U alloy" L. Meshi[S], V.Y. Zenou[S], V. Ezersky[T], A. Munitz[C], M. Talianker[PI]).

2003 37th annual meeting of the Israel Society for Microscopy, Michmoret (Netania), Israel (oral presentation: "Developing of the structural model of a new ternary phase in the U-Fe-Al system by high-resolution transmission electron microscopy" L. Meshi[S], V. Ezersky[T], M. Talianker[PI]).

2003 11-th Israel Materials Engineering Conference – IMEC XI, Haifa, Israel (oral presentation: "Determination of the structure of UFe_2Al_{10} compound" L. Meshi[S], M. Talianker[PI], A. Munitz[PI]).

2003 SSPD'03 Conference – Structure Solution by Powder Diffraction, Stara Lesna, Slovak Republic (poster presentation: "Crystal structure of $Al_{10}Fe_2U$" L. Meshi[S], M. Talianker[PI]).

2004 EMC-2004 – European Microscopy Conference, Antwerp, Belgium (oral presentation: "Determination of the structure of a new intermetallic phase UFe_2Al_{10} by electron crystallography and powder X-ray diffraction" L. Meshi[S], V. Ezersky[T], M. Talianker[PI]).

2005 IUCr Congress (Congress of International Union of Crystallography), Florence, Italy (poster presentation: "New tetragonal phase in Al-Fe-U system" L. Meshi[S], L. Burlaka[S], M. Talianker[PI]).

2005 39th annual meeting of the Israel Society for Microscopy, Ben-Gurion University of the Negev, Beer-Sheva, Israel (oral presentation: "Structural model of the new tetragonal phase in Al-Fe-U system" L. Meshi[S], V.Y. Zenou[S], A. Munitz[C], V. Ezersky[T], M. Talianker[PI]).

2007 TMS special meeting, Las Vegas, USA. (poster presentation: " The reduction of threading dislocations in GaN using a GaN nanocolumn interlayer" L. Meshi[PD], D. Cherns[PI], 1, I. Griffiths[S], S. Khongphetsak[S], A. Gott[C], C. Liu[PD], S. Denchitcharoen[PD], P. Shields[C], W. Wang[PI], R. Campion[C], S. Novikov[C], T. Foxon[PI]).

2007 UK Nitride Consortium, University of Cambridge, UK (oral presentation: "Bulk GaN growth by HVPE using nano-ELOG compliant templates" A. Gott[C], S. Stepanov[C], C. Liu[PD], P. Shields[C], S. Denchitcharoen[PD], W.N. Wang[PI], D. Cherns[PI], L. Meshi[PD], S. Khongphetsak[S], I. Griffiths[S], S.Yu[S], M. Redwood[S], D. Cortaberria-Sanz[PI]).

2008 14th European Microscopy Congress, Aachen, Germany (oral presentation: "The microstructure of (0001)GaN films grown by molecular beam epitaxy

from a nanocolumn precursor layer" L. Meshi[PD], D. Cherns[PI], I. Griffiths[S], S. Khongphetsak[S], S.V. Novikov[C], N. Farley[S], R.P. Campion[C], C.T. Foxon[PI]).

2008 42nd annual meeting of the Israel Society for Microscopy, Technion, Israel (poster presentation: "Structure of ELO-GaN/(0001)sapphire films grown by molecular beam epitaxy" L. Meshi[PD], D. Cherns[PI], I. Griffiths[S], S. Khongphetsak[S], S.V. Novikov[C], N. Farley[S], R.P. Campion[C], C.T. Foxon[PI]).

2009 14-th Israel Materials Engineering Conference – IMEC XIV, Tel-Aviv, Israel (poster presentation: "Revision of the Al-rich part of the Al-Cu-Re phase diagram" L. Meshi[PI], V. Ezersky[T], B. Grushko[PI]).

2010 EPDIC12 and ECM26, Darmstadt, Germany (poster presentation: "Crystal structure of a new Al_2CuIr phase" L. Meshi[PI], V. Ezersky[T], D. Kapush[S], B. Grushko[PI]).

2010 Israel Crystallography Association annual meeting Tel Aviv, Israel (oral presentation: "Determination of the structure of a new Al_2CuIr phase using a combination of precession electron diffraction and powder X-ray diffraction techniques" L. Meshi[PI], V. Ezersky[T], D. Kapush[S], B. Grushko[PI]).

2010 37th Leeds-Lyon Symposium on Tribology, Leeds, UK (poster presentation: "Friction, wear and structure of Cu samples in the lubricated steady friction state" L. Rapoport[PI], A. Moshkovich[C], V. Perfilyev[C], Tatyana Bendikov[S], L. Meshi[PI], S. Samuha[S], H. Cohen[C]).

2010 44rd annual meeting of the Israel Society for Microscopy, Tel Aviv University, Israel (poster presentation: "Microstructural Evolution of Cu subjected to sliding" S. Samuha[S], L. Rapoport[PI], L. Meshi[PI]).

2010 MRS, San Francisco, USA (poster presentation: "Investigation of the structure of a new phase in the Al-Cu-Re system using electron crystallography methods" L. Meshi[PI], V. Ezersky[T], B. Grushko[PI]).

2010 IMC-XI, Lviv, Ukraine (poster presentation: "An investigation of the Al-Rh-Ru phase diagram" B. Grushko[PI], D. Kapush[S], V. Ezersky[T], L. Meshi[PI]).

2011 HighMatTech 2011, Kiev, Ukrain (poster presentation: "Phase equilibria in the Al-rich regions of Al–Cu–Ir, Al–Ni–Ir and Al–Rh–Ru" D. Kapush[S], B. Grushko[PI], L. Meshi[PI], T. Velikanova[C]).

2011 XXII Congress and General Assembly of the International Union of Crystallography, Madrid, Spain. (poster presentation: " Full structure solution of aluminides using precession electron diffraction data" L. Meshi[PI], Y. Krimer[S], S. Samuha[S]).

2011 DIANA 1, Aussois, France (poster presentation: "Advanced non-destructuve microstructural assessment of ODS steels" M. Pinkas[PI], Z. Szaraz[PD], Z. Foxman[S], V. Krjsjak[C], O. Sobol[S], L. Meshi[PI], Y. Snir[S], A. Landau[PI], P. Hänner[C]).

2011 45th annual meeting of the Israel Society for Microscopy, Ha-goshrim, Israel (oral presentation: "Strategies for full structure solution of intermetallic compounds using electron crystallography Methods" Y. Krimer[S], L. Meshi[PI]; poster presentations: (1) "Characterization of the structure of a new ternary approximant phase in the Al-Ru-Rh system" S.Samuha[S], D. Kapush[S], D. Pavlyuchkov[S], B, Grushko[PI], L. Meshi[PI]; (2) "Microstructural characterization of Oxide Dispersion Strengthened ferritic steels" Z. Foxman[S], O. Sobol[S], M. Pinkas[PI], A. Landau[PI], P. Hähner[C], Louisa Meshi[PI])

2012 15th Nordic symposium on Tribology, Trondheim, Norway (oral presentation: "The effect of grain size on deformation, structural changes of Cu under friction in the transition from elasto-hydrodynamic to boundary lubrication regime" L. Rapoport[PI], A. Moshkovich[C], V. Perfilyev[C], I. Lapsker[T], L. Meshi[PI]).

2012 46th annual meeting of the Israel Society for Microscopy, Beer Sheva, Israel (oral presentation: "Structural evolution of MIL101 Metal-Organic Framework revealed by cryo-TEM" O. Sobol[S], E. Gadot[S], Y. Wang[PD], I.A. Weinstock[PI], L. Meshi[PI]; poster presentations:"Structure solution of new $Mg_{48}Al_{36}Ag_{16}$ complex intermetallide from PED data" S. Samuha[S], V. Uvarov[C], L. Meshi[PI] – was awarded **best poster** prize).

2012 Nano Israel, Tel Aviv, Israel (poster presentations: (1)"Structure solution of nano-sized intermetallides found in Al-Mg-Ag system using precession electron diffraction method" S. Samuha[S], V. Uvarov[C], L. Meshi[PI]; (2)"Study of structural evolution during synthesis of mil101 metal-organic framework" O. Sobol[S], E. Gadot[S], Y. Wang[PD], I.A. Weinstock[PI], Louisa Meshi[PI]).

2012 15-th Israel Materials Engineering Conference – IMEC XV, Dead Sea, Israel (poster presentations: (1) "Determination of crystal structure of aluminides using precession electron diffraction method" S. Samuha[S], L. Meshi[PI]; (2) "Microstructural characterization of as-recrystallized oxide dispersion strengthened ferritic steels" O. Sobol[S], M. Pinkas[PI], A. Landau[PI], P. Hähner[C], L. Meshi[PI]; (3)"Structural evolution of oxide dispersion strengthened steels as a function of heat treatments" Z. Foxman[S], M. Pinkas[PI], A. Landau[PI], P. Hähner[C], V. Krsjak[C], L. Meshi[PI]; (4) "Study of aluminides found in Th-T-Al systems (where T=V, Fe and Cu)" A.I. Bram[S], A. Venkert[C], L. Meshi[PI]).

2013 Intermetallics, Kloster Banz, Germany, 2013 (oral presentation: "Structure solution of aluminides from Precession Electron Diffraction zonal data" L. Meshi[PI], S. Samuha[S]). **Lecture was chosen as hot topic.**

2013 XII international conference on crystal chemistry of intermetallic compounds, Lviv, Ukraine, 22-26 Septemberm 2013(poster presentation: "A study of the Al-Pd-Pt alloy system" D. Kapush[S], S. Samuha[S], L. Meshi[PI], B. Grushko[PI], T. Velikanova[C]).

2013 European Crystallography Meeting ECM28, Warwick, UK, 25-30 August 2013 (oral presentation: "Identification and structure solution of ordered $U(Al_x,Si_{(1-x)})_3$ phase" L. Meshi[PI], G.Rafaelov[S], I. Dahan[C]).

2013 FEMS Euromat 2013 – european congress and exhibition on advanced materials and processes, Sevilla, Spain, September 2013 (oral presentations: (1) "Structure characterization of complex intermetallic $Al_{77}Rh_{15}Ru_8$ phase using novel Automated Diffraction Tomography method" S. Samuha[S], E. Mugnaioli[PD], B. Grushko[C], U. Kolb[C], L. Meshi[PI]; (2) "The sensitivity of thermoelectric power to the α-α' separation in Cr-rich ODS steels" Z. Foxman[S], M. Pinkas[PI], P. Hähner[C], L. Meshi[PI]).

2013 47th annual meeting of the Israel Society for Microscopy (ISM), Canaan Spa Hotel, Israel, May 2013 (oral presentation: " Full structure solution of an$PtAl_xTi_{4-x}$ intermetallide from Precession Electron Diffraction zonal data" S. Samuha[S], D. Pavlyuchkov[S], O. Zaikina[S], B. Grushko[C], Louisa Meshi[PI]).

2013 Calphad XLII international conference on computer coupling of phase diagrams and thermochemistry, San Sebastian, Spain, May 2013 (poster presentation: "Characterization of the precipitates in maraging C250 steel: thermodynamic calculations vs. experimental observations" O. Moshka[S], E. Brosh[C], L. Meshi[PI], V. Ezersky[T], M. Pinkas[PI]).

2013 43 Journees des Actinides, Sestri Levante, Italy, April 2013 (oral presentation: "Towards prediction of symmetry of the intermetallic structures formed in the Al-TM-Ac alloys" A.I. Bram[S], A. Venkert[C], L. Meshi[PI]).

2013 The international conference on multifunctional, hybrid materials 2013, Sorreno, Italy (oral presentation: "Cry-TEM reveals structural evolution of

Metal Organic Framework" O. Sobol[S], E. Gadot[S], Y. Wang[PD], I.A. Weinstock[PI], L. Meshi[PI]).

2014 Israel Crystallography Association annual meeting Beer Sheva, Israel (oral presentation: "Electron diffraction as a powerful tool for structure solution of complex intermetallics" L. Meshi[PI], S. Samuha[S], G. Shalev[S]).

2014 48th annual meeting of the Israel Society for Microscopy (ISM), Rehovot, Israel, May 2013 (poster presentation: "Structure solution of Al-V-Th intermetallide using Electron Diffraction Tomography (EDT) method" G. Shalev[S], L. Meshi[PI]).

2014 44th Journees des Actinides, Ein Gedi, Israel (poster presentation: "Towards prediction of crystal structure of Al-rich intermetallides formed in Al-T-A systems" A.I Bram[S], A. Venkert[C], L. Meshi[PI]).

2014 The 16-th Israel Materials Conference (IMEC 16), Technion, Haifa, Israel: (oral presentation: "Structure solution of Al-Ru-Rh approximant of decagonal quasicrystal from automated electron diffraction tomography data" S. Samuha[S], E. Mugnaioli[PD], B. Grushko[C], U. Kolb[C], L. Meshi[PI]**;** poster presentations: (**1**) "The role of transition metals TM on the symmetry of the structures in the Al-TM-Ac alloys (Ac=actinides and lanthanides)" A.I. Bram[S]**,** A. Venkert[C], L. Meshi[PI]; (**2**)"Study of the $U(Al,Si)_3$ vertex location in the 400ºC isothermal section of the U-Al-Si phase diagram" G. Shalev[S], G. Rafailov[C], I. Dahan[C], L. Meshi[PI]; (**3**) "Towards construction of quasi-binary UAl_3-USi_3 phase diagram" A. Uziel[S], A. White[S], G. Rafailov[C], I. Dahan[C], L. Meshi[PI]; (**4**) "Precipitation in maraging 250 steels: early stages vs. over aging" O. Moshka[S], M. Pinkas[PI], E. Brosh[C], V. Ezersky[T], L. Meshi[PI]; (**5**) "The relation between microstructure, mechanical properties and corrosion behavior of friction stir welded die cast AM50 magnesium alloy" G. Ben-Hamu[PI], Y. Ben-Arush[S], L. Meshi[PI]).

2015 49th annual meeting of the Israel Society for Microscopy (ISM), Bar Ilan, Israel, May 2015 (oral presentation: "Structure Solution of $Al_{65}Cu_{25}Re_{10}$ phase by 3D Electron Diffraction Tomography", S. Samuha[S], B. Grushko[C], L. Meshi[PI], poster presentation: "Characterization of Mg-based friction stir welded alloys", Y. Templeman[S], G. Ben Hamu[PI], L. Meshi[PI])

2015 45th Journees des Actinides, Prague, Czech Republic, April 2015 (oral presentation: "Relative stability of possible ThT_2Al_{20} structures (where T=3d transition metal" A. Uziel[S], D. Fuks[PI], L. Meshi[PI])

2015 6th International conference on Mechanics and Materials in Design (M2D2015), Ponta Delgado/Azores, Portugal, July 2015 (poster presentation: "Superplastic deformation of α/β brass under friction conditions A. Moshkovich[PI], L. Meshi[PI], L. Rapoport[PI])

2015 Euromat 2015, Warsaw, Poland (poster presentation: " Relative stability of ternary aluminides formed in the ThT_2Al_{20} system (where T=3d transition metals)" D. Fuks[PI], A. Uziel[S], L. Meshi[PI])

2015 XXIII conference on Applied Crystallography, September 2015, Krynica Zdroj, Poland (oral presentation: "Structure determination of new ternary Th-Ni-Al phase from electron diffraction tomography data" G. Shalev[S], L. Meshi[PI])

2015 SIPS2015, Anatalya, Turkey, October 2015 (oral presentation: "Peculiarity of plastic deformation of α/β brass during friction" L. Rapoport[PI], L. Meshi[PI], I. Lapsker[T], A. Moshkovich[C], V. Perfilyev[C])

2016 The 17-th Israel Materials Conference (IMEC 17), Bar Ilan University, Israel: (oral presentation: "Structure determination of a new ternary Th-Ni-Al phase using electron diffraction tomography method", G. Yaniv[S], L. Meshi[PI] ; poster presentations: 1)"Understanding the Corrosion Behavior of Friction-Stir-Welded Die Cast AM50 and AZ31-H24 Magnesium Alloys",

Y. Templeman[S], G. Ben Hamu[PI], L. Meshi[PI]; 2) "Comparison between the dendrite and inter-dendrite regions in the as cast alcocrfeni high entropy alloy",Y. Linden[S], A. Munitz[C], S. Salhov[C], M. Pinkas[PI] , L. Meshi[PI])

2016 RRFM 2016, Berlin, Germany (poster presentation: "Additional evaluation of ordered $U(Al,Si)_3$ crystal structure using first principals calculations" G. Rafailov[S], V. Zenou[PI], I. Dahan[C], L. Meshi[PI], D. Fuks[PI])

2016 50th annual meeting of the Israel Society for Microscopy (ISM), Haifa, Israel (oral presentation:, L. Meshi[PI], "Study of the ternary Th-T-Al phases")

2016 The 58th electron materials conference, University of Delaware, USA (poster presentation: "Temperature-Driven Reversible Structural Phase Transition in Molybdenum Ditelluride Single Crystals" S. Krylyuk[PI], I. Kalish[C], L. Meshi[C], R. Beams[C], B. Kalanyan[C], D. Sharma[C], M. Beck[C], H. Bergeron[C], M.C. Hersam[PI], A.V. Davydov[PI])

2016 European Crystallography Meeting ECM-30, Basel, Switzerland. (poster presentation: "Structural changes as a function of transition metal`s (T) type in the ThT_2Al_{20} alloys" L. Meshi[PI], G. Yaniv[S], A. Uziel[S], A. Bram[S], A.E. Kiv[C], A. Venkert[C], D. Fuks[PI]).

2017 TMS 2017, USA. (oral presentation: "The microstructure evolution of HAVAR Co-base alloy during cold rolling" D. Moreno[PI], S. Haroush[PI], L. Meshi[PI], S Remmenik[T], V. Ezersky[T], I. Silverman[C], Y. Gelbstein[PI], R. Shneck[PI]).

2017 51st annual meeting of the Israel Society for Microscopy (ISM), Weizman Institute, Rehovot, Israel, May 2017 (3 poster presentations: 1) Y. Linden[S], S. Salhov[S], A. Munitz[C], M. Pinkas[PI] , L. Meshi[PI], "Phase transformations in equiatomic Al-Co-Cr-Fe-Ni high entropy alloy", 2) G. Yaniv[S], G. Rafailov[C], I. Dahan[C], J. Vacik[C], A. Kiv[C], D. Fuks[PI], L. Meshi[PI], "Characterization of the $U(Al,Si)_3$ alloy after irradiation by Ar ions", 3) Y. Templeman[S], M. Pinkas[PI], L. Meshi[PI],"Microstructural characterization on nano-oxides in 14%Cr ODS steel")

2017 IUCr Congress (Congress of International Union of Crystallography), Hyderabad, India (poster presentation: "Structure of A-T-Al aluminides (A=actinide/lanthanide; T=transition metals)", G. Yaniv[S], M. Sasportas[S], D. Fuks[PI], L. Meshi[PI]).

2017 Intermetallics, Kloster Banz, Germany, 2017 (oral presentation: G. Yaniv[S], D. Fuks[PI], L. Meshi[PI] "Relative stability of intermetallic compounds in the AMn_2Al_{20} alloys (where A=lanthanide/actinide/rare earth")

2018 Israeli Materials Engineering Conference IMEC18, Dead Sea, Israel 2018 (oral presentations: 1) G. Yaniv[S], D. Fuks[PI], L. Meshi[PI] "AMn_2Al_{20} alloys (where A=lanthanide/actinide/rare earth elements"; 2) M. Pinkas[PI], Y. Linden[S], S. Salhov[S], S. Hayun[C], Meshi L[PI], "What are the causes for the differences in phase transformation between the dendrite and interdendrite regions in AlCoCrFeNi high entropy alloy?"; poster presentations: 1) Y. Tempelman[S], D. Sornin[C], M. Pinkas[PI], L. Meshi[PI], "Characterization of nanosized oxides in the 14 wt% Cr oxide dispersion strengthened steel"; 2) G. Hillel[S], L. Natovitch[S], S. Salhov[C], M. Pinkas[PI], L. Meshi[PI], "Understanding the role of the constituting elements of the AlCoCrFeNi high entropy alloy through the investigation of the quaternary alloys"; 3) N. Ophek[S], G. Yaniv[S], S. Krylyuk[C], A.V. Davydov[PI], L. Meshi[PI], "Structural investigations of the $MoTe_2$ phases")

2018 52nd annual meeting of the Israel Society for Microscopy (ISM), Dan Panorama, Tel Aviv, Israel, May 2018 (oral presentation: G. Yaniv[S], L. Meshi[PI], " Investigation of the structure of a new Nd-Re-Al phase using electron crystallography methods"; poster presentation: Y. Tempelman[S], D. Sornin[C], M. Pinkas[PI], L. Meshi[PI], "Characterization of nanosized oxides in

the 14 wt% Cr oxide dispersion strengthened steel" This poster has won "**best poster award**").

2019 53rd annual meeting of the Israel Society for Microscopy (ISM), Dan Panorama, Tel Aviv, Israel, May 2019 (poster presentation: L. Natovitz[S], A. Munitz[C], I. Edry[C], L. Meshi[PI],"Microstructural characterization of novel AlCrFeNiNb high entropy alloy"; B. Ratzker[S], L. Meshi[PI], A. Wagner[S], S. Kalabukhov[T], N. Frage[PI], "Characterization of deformed nanocrystalline oxide ceramics"; Y. Tempelman[S], S. Rogozhkin[C], A. Khomich[S], A. Nikitin[S], M. Pinkas[PI], L. Meshi[PI], "Characterization of nanosized particles in 14 wt% Cr oxide dispersion strengthened steel using classical and frontier microscopy methods"; G. Yaniv[S], E. Teblum[S], G. D. Nessim[PI], L. Meshi[PI], "Characterization of structures crystallizing in the $Cu_{2-x}S$ samples grown by chemical vapor deposition").

2019 MCM2019, Belgrad, Serbia, September 2019 (oral presentation: Y. Templeman[S], S. Rogozhkin[C], A. Khomich[C], A. Nikitin[C], M. Pinkas[PI], L. Meshi[PI], "Characterization of nano-sized particles in 14%Cr oxide dispersion strengthened (ODS) steel using classical and frontier microscopy methods").

2020 TMS, San Diego, USA (poster presentation: L. Meshi[PI] , L Natovitz[S], G. Hillel[S], Y. Linden[S] , Sh. Salhov[C], M. Pinkas[PI], "Antiphase boundaries in the B2 matrix of the Al-Co-Cr-Fe-Ni high entropy alloy").

2021 IUCr 2021, Prague, Czech Republic. Oral presentation: L. Meshi[PI], R. Tamari[S], B. Grushko[PI], "Crystal structure of the $Al_{78}Mn_{17.5}Pt_{4.5}$ phase as revealed by electron crystallography".

2021 Intermetallics conference. Oral presentation: G. Hillel[S], D. Vidal[S], I. Edry[C], M. Pinkas[PI], D. Fuks[PI], L. Meshi[PI], "Study of structural defects in binary and ternary B2 alloys of the AlCoCrFeNi system"

2021 IMEC 2021, Jerusalem, Israel. Poster presentations 1 by G. Hillel and 2 posters by R. Shockner.

2022 Materials Science and Engineering Congress (MSE) 2022, Darmstadt, Germany. Oral Presentation: R. Shockner[S], S. Syniakina[PD], V. Richter[C], O. Girshevitz[C], I. Edry[C], M. Pinkas[PI], L. Meshi [PI], "Radiation damage mechanism in B2 single phase AlFeCoNi medium entropy alloy".

2022 European Crystallography Meeting (ECM) 33, Versailles, France. Oral presentation: L. Meshi[PI], S. Sinyakina[PD], B. Grushko[PI] "Characterization of the atomic structure of the $Al_{79.5}Mn_{16}Pt_{4.5}$ R-phase by 3D electron diffraction".

(c) Seminar presentations at universities and institutes

2004 Invited seminar at the Department of Physics, NRC (Kamag). **Topic:** "Determination of unknown structure by combined methods of X-ray powder diffraction and electron crystallography".

2005 Invited seminar at the Institute for Nanoscience and Nanotechnology, Ben Gurion University. **Topic:** "Crystallographic image processing and simulations of HRTEM images".

2010 Invited seminar at the Department of Materials, NRC (Kamag). **Topic**: "Precession electron diffraction".

2010 Invited characterization seminar in the Ilse Katz Institute for nano-science, Ben Gurion University of the Negev, Beer Sheva, Israel. **Topic**: "Precession Electron Diffraction as a new tool for crystal structure analysis".

2011 Invited seminar in the Ilse Katz Institute for nano-science, Ben Gurion University of the Negev, Beer Sheva, Israel. **Topic**: "Strategies for full structure solution of intermetallic compounds using novel electron crystallography methods".

2012 Invited seminar at the Electrochemistry group, Tel Aviv University. **Topic**: "Precession Electron Diffraction – a new technique for structure solution of nano-sized crystals".

2016 Invited seminar at the Materials Engineering Department (contact Prof. Kotov), University of Michigan, Ann Arbor, USA. **Topic**: "Electron crystallography as a tool for structure solution of novel materials".

2016 Seminar at the MSED (Materials Science and Engineering Division) seminar series, (organizers Dr. D. Josell and Dr. R. Nieuwendaal), National Institute of Standards and Technology (NIST), Gaithersburg, MD, USA **Topic:** "Structure solution of complex aluminides using novel electron crystallography methods"

2016 Invited seminar at physics colloquia (contact Prof. Vora) at the George Mason University, Fairfax, Virginia, USA. **Topic:** "Structure solution of complex aluminides using novel electron crystallography methods"

2016 Invited seminar at Tel Aviv University, Israel. **Topic**: " Development of routine for solution of alluminide`s structures basing on electron diffraction data".

2019 Invited seminar at Materials Science and Engineering Department (contact Prof. R. Lehman), Rutgers University, New Brunswick, USA. **Topic**: "Electron crystallography as a tool for characterization of atomic structures and imperfections".

2019 Invited seminar at the Materials and Interfaces Department, Weizmann Institute, Rehovot, Israel. **Topic**: "Electron crystallography ".

2021 Invited seminar at Tel Aviv University, Israel (host Dr. S. Gorfman). **Topic**: "Engineering of novel high entropy alloys".

2021 Invited seminar at Ariel University, Israel (host Prof. M. Zinigrad). **Topic**: "Electron crystallography as applied in metallurgy".

2021 Invited seminar at Warwick University, UK (given on-line). **Topic**: "Application of Electron Crystallography Methods in Metallurgy".

- **Research Grants**

2009-2011 Grant for joint research with Nuclear Research Center (Vatat). Co-PI Dr. Itzhak Dahan. Total amount: 44000$

2009-2012 Grant for joint research with Nuclear Research Center (JRC). Co-PI Dr. Alexander Landau. Total amount: 100000$

2010-2011 Rich foundation (Individual). Start up grant in order to promote women in science. Period of grant: one year. Total amount: 4000$.

2010-2013 Bikura – F.I.R.S.T grant (ISF individual). High risk, innovation program, title: "The Structural Evolution of Nano-Ordered Functional Materials". Co-PI Prof. Ira Weinstock (Chemistry Department, Ben Gurion University of the Negev, Beer-Sheva, Israel). Period of grant: three years. Annual amount 62000$, total amount 186000$.

2010-2013 Grant for joint research with Nuclear Research Center (Vatat). Co-PI Dr. Malki Pinkas and Prof. Nachum Frage. Total amount: 40000$

2011 GIF-young grant (individual). Title: "Characterization of the structure of a new approximant in Mg-Al-Ag system using novel precession electron diffraction technique". Period of grant: one year. Total amount: 55000$.

2012-2013 Grant for joint research with Nuclear Research Center (Vatat). Co-PI Dr. Eli Brosh and Prof. Roni Shneck. Total amount: 25000$

2014–2017 Pazi grant of the atomic energy committee. Co-PI Dr. I. Dahan. Amount per annum: 41250$

2014-2017 Pazi equipment grant. Co-PI Dr. I. Dahan. Amount per annum: 150000$

2016-2020 Grant for joint research (JRC). Co-PI Dr. Malki Pinkas (NRCN). Amount per annum: 33316$, total 133264$

2017-2019 Italy-Israel grant on scientific and technological cooperation (MOST). Institutional co-PI: Dr. G. Frank (Life Science). Amount per annum: 67500$, total 135000$

2019-2023 Pazi grant of the atomic energy committee. Co-PI Dr. M. Pinkas. Amount per annum: 55418$, total 221672$

2020-2023 MOST (Ministry of Science and Technology). Co-PI Dr. M. Pinkas. Total amount 1.2M NIS=350000$.

2020-2021 Council for Higher Education-Planning & Budgeting Committee - Institutional Equipment: TEM. Co-PIs Prof. Y. Golan and Prof. T. Mokari. Total Amount 3.240M NIS=943000NIS

2022-2025 "Nofar" of the Israel Innovation Authority (co Pi Prof. Roni Shneck and IAI). Per annum: 128000$, total 384000$

- **Present Academic Activities:**

Two major research paths in progress:

- "Development of Electron Crystallography methods"
- "Development of new High Entropy Alloys"

In progress: 4 papers being reviewed in Q1-ranked journals.

• **Additional Information - Participation in International Schools:**

2005 MathCryst school for mathematical crystallography, Nancy, France.
2004 Electron Crystallography School, Erice, Italy.
2002 School on Large Angle Convergent Beam Electron Diffraction, Lille, France.
2001 Electron Crystallography School, Barcelona, Spain.

• **Synopsis of research**:

- **Subject: "Development of strategies for full structure determination of intermetallides using electron crystallography"**

For technological progress new or optimized multifunctional and structural intermetallics are needed. These phases often possess new structure types, identification and characterization of which is prerequisite for study of their properties. Mostly complex intermetallic phases have large volume of the unit cell and appear as nano-sized particles dispersed in metallic matrices. Thus, single/powder X-ray diffraction methods can not be used for characterization of their structure due to the lack of single crystals and overlapping and/or broadening of powder diffraction peaks. In such cases, electron diffraction (ED) emerges as the only tool for structure determination. In past, conventional ED (such as Selected Area Electron Diffraction (SAED)) was not commonly used for determination of atom positions due to dynamical nature of electron diffraction intensities. The situation has changed when Precession Electron Diffraction (PED), which produces quasi-kinematic intensities, was invented. There exist two main ED data collection methodologies: 1) collection of different PED patterns at zone axis orientation in SAED or nano-beam mode (zonal data); and 2) collection of "off-axis" ED patterns with small angular steps between them (with and w/o precession) (Electron Diffraction Tomography (EDT/ADT) or Rotation Electron Diffraction (RED) approaches). Collection of "off-axis" patterns provides higher completeness of data, so even the most complicated structures with high unit cell parameters can be solved "*ab initio*".

Our group focuses on usage of ED data for structure solution of intermetallics in general and aluminides in particular. We have already successfully solved structures of 5 aluminides (published data), among which is the Al-Ru-Rh complex approximant with 480

atoms in the unit cell. Next step in our research is to implement dynamical refinement for successful determination of partial occupancies.

- **Subject: "High Entropy Alloys – development of next generation structural materials"**

High Entropy alloys (HEA) are currently in the center of researchers' attention due to their promising mechanical properties, some of which overweigh those of steels. The AlCoCrFeNi alloy, which displays a good combination of yield strength and ductility, is one of the most studied HEAs. Vast majority of the studies was performed on this alloy with a purpose to understand the effect of fabrication parameters on its complex microstructure. Ambiguous results were reported. For example, eutectic reaction and spinodal decomposition were proposed as possible mechanisms but neither was proved. Moreover, our study on this alloy revealed characteristic antiphase boundaries (APBs) with different ranges of order as a function of the region in the as-cast alloy (dendrite or interdendrite) (study was published in Scripta Metal.). Not only that the existence of these boundaries was not reported previously, their presence may shed light on some phenomena which were stated but not explained in the literature. There are evidences that APBs are related to the residual strains and the latter seems to play an essential role in this material, especially on phase transformations occurring upon exposure to high temperatures, and was completely ignored in previous researches. Yet, the causes for the formation of the APBs and ordering of these boundaries are not understood. Furthermore, despite its superior properties, AlCoCrFeNi alloy is not implemented in the industry due to its inhomogeneous microstructure, ambiguity in reported results, lack of understanding of the crystallization path and thermodynamics, kinetics of phase transformations and, thus, unpredictability. In the future we intend to perform in-depth metallurgical and structural research to clarify these subjects. Emphasis of this research is on phase transformations occurring in this alloy as a function of temperature and irradiation. Understanding of the phase transformations occurring in the HE alloys will promote their use as structural materials.
Important, as well, roles of each element in this system. Currently we are investigating this subject.

• **Teaching Statement**:
My teaching objective is to show students the science behind the Materials Engineering, building the knowledge brick by brick from the basics to frontiers of the science.

One of the problems of Materials Engineering discipline is to engage and enroll students. I believe that this connects to the unfortunate ignorance on this subject of many potential students. *In order to improve this*, I volunteer in schools where physics and chemistry majors exists advertising and explaining what Materials Science and Engineering is about, thus, creating an interest and curiosity. Concomitantly, I emphasize my attention on female students in order to enroll as many female students as possible and promote women in science.

Due to the strong investment of governments in the nano and bio worlds, "old fashioned" subjects, such as metallurgy, were neglected. However, one cannot imagine proper materials engineer without training/teaching on/of **physical metallurgy**. I teach both undergraduate and graduate courses on this subject – including subjects as Phase transformations, Phase Diagrams, Diffusion in solids, Solidification, Steels, Non-ferrous alloys etc`.

Electron Microscopy is a very broad science which requires solid background in physics for successful usage of the instrument to its full potential and correct interpretation of the results. Unfortunately, many use transmission electron microscopes (TEMs) as magnifying glass without understanding the capabilities. I am trying to change this situation by providing at least three courses – one basic EM course – introduction to

microscopy, which includes scanning electron microscopy (SEM), TEM and scanning transmission TEM (STEM) as well as basics of spectroscopy. Second – short hands on experience course given to graduate students who intend to work independently on the microscope in my group and in the past also to other PIs` students. Third – graduate level TEM course which includes advance imaging and analytical methods, as well as image processing.

Due to my knowledge in **crystallography** – both undergraduate and graduate courses on this and related subjects are given – including subjects as Group Theory, Structural Defects, Periodic and Non-periodic Structures, X ray diffraction, Electron Diffraction etc`.

Past Teaching Experience: I have played major role in undergraduate curricula shaping since I have served as chair of undergraduate teaching committee for more than 7 years. I have created and taught courses at both undergraduate and graduate levels. All of my "hands on" courses provided students with a knowledge how to operate the equipment, how to perform successful independent research and interpret correctly the results. I am very proud that I was awarded an excellence in teaching prize and that each year I receive high scores in teaching survey filled by the students.

Future directions and improvement: during the lockdown and related “covid19” events, the teaching was transferred to digital media, which imposed new challenges in teaching. I was working very hard and intend to improve engagement of the students during the lectures held in zoom platform. One of the ideas which was already employed – approaching directly to each student by name during the lecture and asking direct question to monitor the understanding.