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Resume

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EMPLOYMENT

2020 – Present	Senior Research Scientist (Grade A+), Physics Department, Nuclear Research Centre – Negev, Israel
2019 – 2020	Guest Research Scientist, NIST Center for Neutron Research, National Institute for Standard and Technology (NIST), Gaithersburg MD, USA (On sabbatical leave from the Nuclear Research Centre – Negev, Israel)
2014 – 2019	Head, Physics Department, Nuclear Research Centre – Negev, Israel.
2013 – 2014	Senior Research Scientist, Physics Department, Nuclear Research Centre – Negev, Israel
2012 – 2013	Visiting Research Scientist, Materials Science and Engineering, Drexel University, Philadelphia PA, USA (On sabbatical leave from the Nuclear Research Centre – Negev, Israel)
2007 – 2012	Head, Laboratory of Experimental Physics, Physics Department, Nuclear Research Centre - Negev, Israel.
2003 – 2007	Researcher in Physics Department, Nuclear Research Centre - Negev, Israel.
2001 – 2003	Postdoctoral position in Materials Science Division, Argonne National Laboratory, Argonne IL, USA. Main subject: “Crystallography and Magnetism of novel oxide materials”. Supervisor: Dr. James D. Jorgensen, Argonne National Laboratory, Argonne IL, USA.
2000 – 2001	Researcher in Physics Department, Nuclear Research Centre - Negev,

Israel.

ACADEMIC TITLE

2013 – present	Visiting Research Professor, Materials Science and Engineering, Drexel University, Philadelphia PA, USA

ACADEMIC COURSES TAUGHT

2022	"Thermal neutron scattering in materials research", graduate students' course in Materials Science and Engineering Department, Tel-Aviv University

EDUCATION

1998 - 2001 Ph.D. in Physics, The Kreitman School of Advanced Graduate Studies, Ben-Gurion University of the Negev, Beer-Sheva, Israel.
Thesis: "Magnetism of A atoms in intermetallic compounds, AM_2X_2 (A = lanthanide, U; M = transition metal; X = Ge, Si)".
Supervisors: Prof. H. Shaked, Ben-Gurion University of the Negev, Beer-Sheva, and Dr. M. Melamud, Nuclear Research Centre - Negev.

1995 - 1998 MSc. in Physics, Physics Dept., Ben-Gurion University of the Negev, Beer-Sheva, Israel.
Research subject: "Magnetism of randomly distributed A atoms in ACo_2Ge_2 ($A = Nd_{1-x}Tb_x$; $U_{1-x}Nd_x$)".
Supervisors: Prof. H. Shaked, Ben-Gurion University of the Negev, Beer-Sheva, and Dr. M. Melamud, Nuclear Research Centre - Negev.

1991 - 1995 BSc. in Physics and Materials Engineering, Cum Laude, Ben-Gurion University of the Negev, Beer-Sheva, Israel.

RESEARCH GRANTS

2018-2022 PI in the "PAZY foundation" scientific equipment grant: "Magnetic properties measuring system for MAX/MXene phases and more"

2018-2022 co-PI in the "PAZY foundation" research grant: "Magnetic properties of nanolamellar MAX/MXene phases"

2013-2017 PI in the "PAZY foundation" research grant: "A novel liquid-Xenon detector concept for combined fast-neutron and gamma-ray imaging and spectroscopy"

AWARDS AND SCHOLARSHIPS

2000 "Katzir" scholarship for excellence in scientific research in governmental institutes, NRCN (given for a period of six years).

1992 Citation of Excellency, 2nd year of undergraduate studies, Ben-Gurion University of the Negev, Beer-Sheva, Israel.

1991 Full year Excellency Scholarship, 1st year of undergraduate studies, Ben-Gurion University of the Negev, Beer-Sheva, Israel.

INVITED TALKS

2022 *"Magnetism in MAX and MAB phases"*, CIMTEC2022, Perugia, Italy.

2021 *"Residual stress and texture characterization of curved parts"*, IMEC2021, Jerusalem, Israel.

2018 "*Understanding the magnetic properties of nanolayered carbides. Nitrides, and*

borides: The role of neutron scattering", 14th Ceramic Conference at CIMTEC2018, Perugia, Italy.

2017 "*Microstructure Study of Additively Manufactured Ti-6Al-4V using Neutron Diffraction*", Israel Physical Societies conference, Haifa, Israel.

2014 "*Neutron Diffraction Evidence for Incipient Kink Bands in Highly Textured Ti_2AlC*", 13th Ceramic Conference at CIMTEC2014, Montecatini Terme, Italy.

2013 "*Neutron diffraction evidence of IKB formation in textured Ti_2AlC MAX phase"*, Materials Science and Engineering, Drexel University, Philadelphia, PA, USA; Materials Science Division, Argonne National Laboratory, Argonne, IL, USA.

2010 "*Did they fight with silver axes 4000 years ago? (Neutron diffraction study of Levantine Middle Bronze Age cast axes*", 1st bilateral workshop of the JRC-IAEC cooperation, Ein-Gedi, Israel; Department of Materials Engineering, Ben-Gurion University of the Negev, Beer-Sheva, Israel.

2003 "*Competition among charge- orbital- and spin-ordering in $(Ca_{1-x}Ce_x)MnO_3$: a complementary x-ray synchrotron and TOF neutron diffraction study*", Frontiers in powder diffraction, 2003 NSLS users' meeting, Brookhaven National Laboratoey, NY, USA.

REFEREE OF SCIENTIFIC PUBLICATIONS AND PROPOSALS

Book review *Micromagnetism and the Microstructure of Ferromagnetic Solids*, H. Kronmiiller and M. Fahnle, Materials Research Bulletin 40, 573 (2005).

Papers reviewed for Physical Review B, Journal of Solid State Chemistry, Materials Research Bulletin, Solid State Communications, Journal of Physics Condensed Matter, Journal of Instrumentation, Inorganic Chemistry, Materials Research Letters, Journal of the American Ceramic Society, Nature Scientific Reports, Journal of Materials Chemistry C, Journal of Alloys and Compounds, Additive Manufacturing.

Scientific proposals review for the neutron scattering user group of the Bragg Institute, Lucas Heights, NSW, Australia.

MAJOR RESEARCH EXPERIENCE & INTERESTS

Neutron scattering: Investigation of the crystallographic and magnetic structures and interactions of materials; Investigation of pair distribution function of liquids; Non-destructive study of archeological artifacts; Mechanical properties of archaeological artifacts; Investigation of structural properties of biogenic materials; In-situ mechanical properties of ceramics and metallic compounds, and their dependence of crystal structure. Characterization of additively manufactured materials. Texture and residual stress measurement.

Indirect magnetic interactions via conduction electrons, i.e. the s-f hamiltonian, RKKY

interactions and Kondo effect. Itinerant vs. localized magnetism.

Magnetic symmetry and its relations to crystal symmetry.

Complementary experimental methods, e.g. magnetic susceptibility, SQUID magnetization, X-ray diffraction, Synchrotron X-ray diffraction NMR, etc.

Special nuclear materials interrogation using active and passive nuclear methods.

ACTIVE COLLABORATIONS

Prof. Michel Barsoum, Materials Science and Engineering, Drexel University, USA: *In-situ mechanical properties of ceramic and metallic compounds using neutron scattering*. *Structural and magnetic properties of advanced ceramics (e.g. MAX / MAB)*

Prof. Thierry Cabioc'h, Institut P', Université de Poitiers, Poitiers, France: *Characterization of novel MAX phase ceramics*.

Dr. Sven C. Vogel, Los Alamos National Laboratory, Los Alamos, USA: *Characterization of additively manufactured materials.*

Prof. Johanna Rosen, IFM, Linköping University, Linköping, Sweden: *Magnetic interactions in MAX phases*.

Prof. Amit Keren, Physics Department, Technion Institute of Technology, Haifa, Israel: *Magnetic interactions in MAX and MAB phases*.

Dr. Thomas Gnäupel-Herold, NIST Center for Neutron Research, National Institute of Standard and Technology, Gaithersburg MD, USA: *Residual stress and texture of additively manufactures Ti materials*.