

CURRICULUM VITAE

Yoav Snir

Department of Materials Science and Engineering,

NRCN, Israel Atomic Energy Commission

POB 9001, Beer-Sheva, Israel

Telephone: +972-50-6222466

E-mail address: snirys@gmail.com

Family status: married + 3 children

EDUCATION:

2017- present, Ph.D studies at the Department of Materials Engineering, Ben-Gurion University, Beer-Sheva, Israel. Ph.D:

Thesis: "*Characterization of the Effect of Aging Kinetics on Hydrogen Interaction With High Strength Steels*" : The PhD research focuses on the complex interplay between the metallurgical features, of precipitation-hardened high alloy steels and hydrogen diffusion and trapping and its effect on the mechanical behavior. For the research the small punch test technique (SPT) and thermal desorption spectroscopy (TDS) along with advanced microscopy techniques are employed.

Results of this study were already published in three peer – reviewed papers, and the final thesis dissertation is being written these days.

2003 M.Sc, Materials Science Engineering Ben-Gurion University, Beer-Sheva, Israel. (With honors.)

Thesis: "*The Effect of Compression Deformation on Stored Energy and Corrosion Behavior of Mg Alloys*" : This research focused on the basic relation between the microstructure of three wrought Mg alloys (AZ31, AM50, ZK60) after compression deformation at various temperatures, and the corrosion behavior of these alloys. It was found that the stored energy (manifested by microstructural changes such as twinning) and its release by dynamic recrystallization processes had a dramatic effect on the corrosion behavior at different states.

2000 B.Sc, Materials Science Engineering Ben-Gurion University, Beer-Sheva, Israel. (With excellence).

MAIN AREAS OF INTEREST (Physical metallurgy, characterization and processing) :

- Hydrogen trapping mechanisms in advanced steels.
- High entropy and complex concentrated alloys
- Martensitic transformation in alloys, steels and shape memory alloys.
- Physical metallurgy of advanced solidification casting, metal additive manufacturing and welding (recently).
- Advanced characterization techniques – metallurgical Non-Destructive Evaluation (NDE) techniques, synchrotron radiation x-ray diffraction (SR-XRD), advanced mechanical techniques such as the small punch test (SPT).
- Processing and manufacturing of materials.

EMPLOYMENT HISTORY:

A) Positions at the Nuclear Research Center Negev

2017– present Head laboratory for materials processes.

2015– 2017 Research scholar at the Department of Materials Science and Engineering, University of North Texas, the X-lab group of Prof. Marcus Young.

2009 – 2015 Head of section at the Materials Science and Engineering Department, NRCN

2005 – 2009 Head of group at the Materials Science and Engineering Department, NRCN

2002 – 2005 Research scientist at the Materials Science and Engineering Department, NRCN

B) Academic Professional Experience

2000 - 2002 Graduate Laboratory Instructor, Department of Material Science and Engineering Ben-Gurion University of the Negev.

ADDITIONAL PROFESSIONAL ACTIVITIES:

Research at the University of North Texas 2015-2017:

- **Hydrogen effects on NiTi shape memory alloys (SMA)**– a study was conducted on the effects of hydrogen on the phase transformation and structural stability of Ti-rich NiTi SMA wires which are widely used in the medical industry. Through a simple immersion test a strong hydrogen effect was found which further studied with SR-XRD in-situ experiments and other techniques. These findings were published in three peer-reviewed papers and one patent and were also presented in three scientific conferences.
- **High entropy alloys** – high entropy or complex concentrated alloys (HEA/CCA) are a new class of materials which consist of at least 4 metallic elements mixed in high elemental atomic ratios. I led a preliminary study on Fe-rich FeCrNiCo HEAs to develop a new high strength hydrogen resistant alloy. The findings were presented in two scientific conferences and further work is ongoing.

Co-Advisor for Graduate students for B.Sc at Ben-Gurion University:

- 2008 – Preliminary study of aging kinetics in PH-13-8Mo stainless steel by advanced Non Destructive Evaluation (NDE) methods, E. Amzaleg.
- 2009 – Ageing kinetics study of A286 PH stainless steel by Thermo-Electric Power (TEP) measurements, E. Vinegard (best project award 2009).
- 2009 - Friction Stir Welding (FSW) of magnesium and aluminum alloys, J. Amsellem.
- 2011 - Metallurgical characterization of PH-13-8Mo stainless steel by TEP measurements, M. Elgarissi, M. Morad

International collaboration of IAEC with the JRC: ODS steels for generation-IV nuclear reactors (2010 – 2015)

- Development of advanced characterization methods for metallurgical changes under extreme service conditions with an emphasis on the identification of the so called 475°C embrittlement. Thermo-Electric Power (TEP) measurements and TEM were the main characterization methods.

Material Characterization (2006 – 2009):

- Thermo Electric Power (TEP) measurement in precipitation hardened alloys was examined as a potential method for the non-destructive evaluation (NDE) of the metallurgical state in advanced steels. A thorough examination of several steels has shown a clear correlation between the metallurgical state of the alloy (characterized by microscopy techniques, XRD and hardness tests) and TEP measurements.

Advanced processing of materials (2005 – 2006) :

- Friction Stir Welding (FSW) is a solid state welding technique. We have studied this technique in an attempt to better understand its implementation, especially for light and reactive alloys such as Mg alloys or dissimilar welding of Mg-Al alloys.

PRIZES AND SCHOLARSHIPS

- PAZI sabbatical scholarship for scientists 2015-2017
- KATZIR scholarship for Young Scientific Leadership 2004-2010.
- MSc. With Honors 2003.
- BSc. With excellence 2000.
- Best final project award for BSc projects at the Materials Science and Engineering Department Ben-Gurion University 2000.
- NRCN Scholarship 1999-2000.
- Excellence BGU Scholarship for a New Student 1996.