

# Curriculum Vitae

## Guy Shimel

M.Sc. Student – Mechanical Engineer | Tel Aviv, Israel | [guyshimel@mail.tau.ac.il](mailto:guyshimel@mail.tau.ac.il)

---

### Professional Experience

#### R&D Mechanical Engineer | Soreq Nuclear Research Center

2011 – 2017 | SARAF Particle accelerator Target Group

Development of multidisciplinary Systems and infrastructure for particle accelerator SARAF (Soreq Applied Research Accelerator Facility) from idea to execution.

- Research materials and physical solutions for complex problems using new materials, advancements in manufacturing and applying technologies from different disciplines.
- Thermo-Hydraulic simulations of advanced test cases with complex geometries
- Design and study of solutions for physical problems such as mechanical design and manufacturing, laboratory testing and integration, liquid metals systems (Lithium, Sodium Potassium, Gallium Indium), high heat flux removal, control systems, beam diagnostics, vacuum technologies and unique manufacturing processes.

#### Mechanical Engineer | Israel Aerospace Industries

2009 – 2011 | MBT Aerospace Division

- Experimentation of vibration and shock response on integrated aerospace systems to simulate launch or operating conditions per MIL-STD and NASA-STD.
- Writing technical reports and procedures for laboratory safety.

---

### Education

#### M.Sc. Mechanical Engineering, Major in Fluid and Heat Transfer

2015 – Present | Tel Aviv University – TAU

#### B.Sc. Mechanical Engineering

2007 – 2011 | Afeka Tel Aviv Academic College of Engineering

---

### Software Skills

Solidworks, ANSYS (Mechanical, Fluent, APDL), SAP, MATLAB, Visual Studio, C, NI LABVIEW and LABWINDOWS

---

### Languages

Hebrew – mother tongue.      English – Highly fluent.

---

## Publications

### Lithium Based Thermal Neutron Source

[View](#)

Apr 12, 2016 | The 28th Conference of the Nuclear Societies in Israel

Accelerator based thermal neutron source (TNS) is being developed at Soreq NRC to be used as an alternative to IRR-1: Soreq research nuclear reactor. The TNS will provide neutron radiography, diffraction and samples irradiation. SARAF phase-II facility will include a  $10^{15}$  n/s thermal neutron source. The design is based on a 200kW liquid lithium target for 40 MeV deuterons beam.

### Beam Diagnostics Control System - Poster

[View](#)

Dec 11, 2014 | NI Days 2014

### High Power Liquid Lithium Jet Target for Neutron Production

[View](#)

Dec 23, 2013 | Review of Scientific Instruments

A compact liquid-lithium target (LiLiT) was built and tested with a high-power electron gun at the Soreq Nuclear Research Center. The lithium target, to be bombarded by the high-intensity proton beam of the Soreq Applied Research Accelerator Facility (SARAF), will constitute an intense source of neutrons produced by the  $(7)\text{Li}(p,n)(7)\text{Be}$  reaction for nuclear astrophysics research and as a pilot setup for accelerator-based Boron Neutron Capture Therapy. The liquid-lithium jet target acts both as neutron-producing target and beam dump by removing the beam thermal power ( $>5$  kW,  $>1$  MW/cm<sup>3</sup>) with fast transport. The target was designed based on a thermal model, accompanied by a detailed calculation of the  $(7)\text{Li}(p,n)$  neutron yield, energy distribution, and angular distribution. The LiLiT setup is presently in online commissioning stage for high-intensity proton beam irradiation (1.91-2.5 MeV, 1-2 mA) at SARAF.

---

## Courses

- Advanced Methods of Mechanical Design and Manufacturing
- Vacuum Systems Technologies and Design
- Particle Accelerator Technologies
- ANSYS Fluent and Mechanical
- Solidworks Flow Simulations
- Finite Element Analysis & Methods
- National Instruments - Labview Core 1 & 2
- Nuclear Radiation Safety
- Mediation

---

## Honors and Awards

### Outstanding Research in the field of Nuclear Science by the IAEC

2016 | Israel Atomic Energy Commission

This award was given for a breakthrough system developed at Soreq NRC. The system handles high heat flux loads created by Soreq linear accelerator proton beam, allowing the creation of a neutron source.

### Excellence Award for Scientific Achievement

2015 | Civil Service Commission

---

## Hobbies and Interests

Electric Guitar, Technology, Gadgets, Games, Movies