

Yarom Polsky abridged Vita

Academic Expertise:

Mechanical design, solid mechanics, geomechanics, vibrations, heat transfer, thermodynamics, finite element analysis, numerical analysis, mechatronics, controls and hydraulics.

Application Expertise:

Heavy equipment design and manufacturing, drilling, geothermal technologies, sensing technologies, particle accelerator technologies, vacuum applications and electronic packaging fabrication.

Education:

Ph.D., Mechanical Engineering, Georgia Institute of Technology

Dissertation: Improved Prediction Modeling with Validation for Thermally Induced PWB Warpage

M.S., Mechanical Engineering, Rice University

Dissertation: Heat Conduction for Dielectric Thin Films from the Casimir to Diffusion Limit

B.A., Physics, Rice University

Professional Experience:

Oak Ridge National Laboratory, Oak Ridge, TN

Sensors and Embedded Systems Group Leader/Geothermal Technologies Program Manager/Distinguished Member of R&D Staff, 2013 – present

- Current personal research interests – Development of sensing and measurement technologies. Development of neutron imaging and neutron scattering techniques to quantitatively study flow and fracture in geological media.

Laboratory Directed Research and Development (LDRD) Manager, Office of Institutional Planning, 2012 –2014

Engineering Lead for Accelerator Design, Spallation Neutron Source, 2009 – 2012

- Led and supervised Accelerator Design Engineering Team responsible for ongoing design and development of Spallation Neutron Source H- linear accelerator and proton storage ring.
- Designed and developed accelerator components including high energy beam stops, electron stripping assemblies, beam instruments and electromagnets.
- Performed thermal, mechanical, electromagnetic and other types of engineering and physics-based analysis to support design efforts and address operational issues.

Sandia National Laboratories, Albuquerque, NM

Principal Member of Technical Staff, Geothermal Research Department, 2005 – 2009

- PI or key contributor to a variety of projects related to geothermal energy extraction and accessing of subterranean resources involving both application specific equipment development and fundamental research. Relevant projects include: development of a high-temperature downhole diagnostics while drilling tool; development of a drillstring dynamics drilling simulator; development and theoretical description of a high-performance

downhole pneumatic percussion drill; geomechanical analysis of and drilling of inelastic, high-temperature lithologies; and development of a PZT vibration assisted push drilling tool for environmental monitoring.

Schlumberger, Sugar Land, TX

Program Manager/Section Head, IPC Surface Equipment, 2004 - 2005

- Line level engineering manager responsible for oilfield services equipment development in business lines of Coiled Tubing, Fracturing and Cementing. Responsibilities include defining long-term development vision, budgeting, planning, staffing and direct project oversight.

Development Engineer/Senior Mechanical Engineer/Project Manager, 1998 - 2004

- Led the development of a number of onshore and offshore coiled tubing and pumping equipment suites. Applied skills included project management, detailed engineering specification, mechanical design, structural analysis, automation, software specification and programming, and product testing.

Awards:

- 1997 - 1998 INTEL Foundation Graduate Fellowship
- 2003 Performed by Schlumberger Bronze Award
- 2007 Sandia National Labs Employee Recognition Award
- 2009 Sandia National Labs Employee Recognition Award for Advanced High-Speed Drilling Technology

Relevant Publications:

Y. Polsky, L.M. Anovitz, P. Bingham and Justin Carmichael, "Application of Neutron Imaging to Investigate Flow through Fractures for EGS", *Proc. 38th Workshop on Geothermal Reservoir Engineering*, Stanford Univ., Stanford, CA, 2013.

Y. Polsky, L.M. Anovitz, P. Bingham and L. Dessieux, "Development of a Neutron Diffraction Based Strain Measurement Capability for Triaxial Loading", *47th US Rock Mechanics/Geomechanics Symposium*, ARMA 13-153, 2013.

Patents and Patent Applications:

6,763,890 Modular coiled tubing system for drilling and production platforms

6,830,101 Pivoting gooseneck

6,923,253 Pivoting gooseneck

7,073,592 Jacking frame for coiled tubing operations

7,281,588 Tubular injector apparatus and method of use

7,357,184 Jacking frame having a wellhead centralizer

7,404,443 Compensation system for a jacking frame

7,810,555 Injector apparatus and method of use

8,006,776 Sliding pressure control valve for pneumatic hammer drill

8,176,995 Reduced-impact sliding pressure control valve for pneumatic hammer

61/404,465 Method and Apparatus for Coiled Tubing Tractor and/or Wellbore Cleanout