

Leslie Dewan

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- Education** **Massachusetts Institute of Technology**
Ph.D. in Nuclear Science and Engineering, June 2013
Dissertation title: Molecular dynamics simulation and topological analysis of the network structure of actinide-bearing materials
- Massachusetts Institute of Technology**
Bachelor of Science in Nuclear Science and Engineering, June 2007
Bachelor of Science in Mechanical Engineering, June 2007
- Experience** **Transatomic Power**
Cambridge, MA
Cofounder, Chief Executive Officer: June 2010 – present
- Leading the commercialization and materials design of Transatomic Power's molten salt fueled reactor, which converts high-level nuclear waste into carbon-free electric power.
- Vecna Technologies**
Cambridge, MA
Robotics Engineer: September 2007 – May 2008
Nuclear Engineering Consultant: June 2008 – September 2008
- Mechanical design, development, and manufacture of the BEAR, a 6.5 foot tall hydraulically actuated humanoid robot capable of dynamic balancing on two legs.
 - Developed a proof-of-concept device that used laser-induced breakdown spectroscopy for field identification of chemical and nuclear weapons.
- Center for Materials Research and Ethnography, MIT**
Cambridge, MA
Principal researcher modeling mechanics of prehistoric watercraft: June 2004 – June 2010
- Designed and implemented software to model stress patterns, size limits, cargo capacity, and aerodynamic and hydrodynamic characteristics to evaluate sailing ability in various weather conditions and ocean currents.
 - Led team of thirty to design and build a replica vessel (five meters in length) to empirically test sail efficiencies and steering mechanisms.
- Awards** **Fast Company 10 Most Creative People in Business**, June 2015. **National Geographic Emerging Explorer**, June 2015. **Esquire Register - 35 People Under 35 Who Are Reshaping the World**, December 2014. **TIME Magazine 30 Under 30**, December 2013. **MIT Technology Review 35 Innovators Under 35**, September 2013. **Forbes 30 Under 30, Energy**, December 2012. **Department of Energy Computational Science Graduate Fellowship**, 2010 - 2013. Named an **MIT Presidential Fellow**, 2008-2009. Undergraduate research was supported by the **Paul E. Gray Fellowship**, MIT. Awarded first place in the 2007 **American Nuclear Society Undergraduate Student Design Competition** for “Design for a Compact Neutron Interferometer.”
- Skills** **Computer Software:** SolidWorks, SolidEdge, AutoCAD, Ansys, Ricardo WAVE, Matlab, LabVIEW, Metrowerks CodeWarrior, Eclipse, LaTeX, GULP, DL POLY, LAMMPS, VASP
Programming Languages: C, C++, Java, Python, Fortran.
Machine Tools: Lathe, Milling machine, OMAX Waterjet, Plasma cutter

Publications and Patents

- Topological Analysis of Self-Irradiation Damage in a Molecular Dynamics Simulation of Actinide-Doped Zircon. *Journal of Non-Crystalline Solids*, 2015 (in press, first author).
- Prediction of the thermophysical properties of molten salt fast reactor fuel from first-principles. *Molecular Physics*, March 2014.
- Molecular Dynamics Simulation of the Thermodynamic and Transport Properties of the Molten Salt Fast Reactor Fuel LiF–ThF₄. *Journal of Nuclear Materials*, March 2013 (first author).
- Molecular Dynamics Simulation of Structure and Transport Properties of Molten LiF-ThF₄. *Transactions of the American Nuclear Society Winter Meeting*, November 2012.
- Topological Analysis of the Structure of Self-Irradiated Sodium Borosilicate Glass. *Journal of Non-Crystalline Solids*, May 2012 (first author).
- Modeling Radiation-Induced Alteration of the Network Topology of Alkali Borosilicate High-Level Waste Glass. *International Conference on the Chemistry of Glasses and Glass-Forming Melts*, September 2011.
- Nuclear reactors and related methods and apparatus. US 20130083878 A1. Filing date: 3 October 2011
- Ancient Maritime Trade Between Ecuador and Western Mexico on Balsa Rafts: An Engineering Analysis of Balsa Raft Functionality and Design. *Journal of Anthropological Research*, March 2008 (first author).

Selected Conference Presentations, Public Talks, and Congressional Testimony

- Save the World with Nuclear Waste. *National Geographic Explorers Symposium*, Washington, D.C. June 2015.
- Nuclear Energy Technology Innovation: The Road Ahead. *Industry's Opportunities, Challenges, and Needs for Advanced Nuclear Technologies*. The White House, Washington, D.C. June 2015.
- The Future of Nuclear Energy. *US House of Representatives Committee on Science, Space, and Technology, Energy Subcommittee*, Washington, D.C. December 2014.
- Innovations in Electricity Generation. *The Atlantic's Global Innovation Summit*, Abu Dhabi, UAE. November 2014.
- Our Friend the Atom. *Google's Solve for X*, San Martin, CA. February 2014.
- Topological Modeling of Radiation-Induced Structural Alterations of Amorphous and Amorphizable Solids for Nuclear Waste Applications. *The 19th University Conference on Glass Science: Glasses for Energy*, August 2011.
- Topological Exploration of Structure and Defects in Amorphous and Amorphizing Solids. *University of Michigan Colloquium*, February 2011.
- Modeling Radiation-Induced Alteration of the Network Structure of Alkali Borosilicate High-level Waste Glass. *Materials Research Society Fall Meeting*, December 2010.
- Radiation-Induced Alteration of Network Structure in Sodium Borosilicate Glass. *American Nuclear Society Winter Meeting*, November 2010.
- Atomistic Simulations of Radiation Damage Resistance in Network Glasses. *Proceedings of Innovative Materials Immune to Radiation*, August 2010.
- Modeling Alteration of Borosilicate High-level Waste Glass Networks in a Radiation Environment. *American Ceramic Society Glass and Optical Materials Division Spring Meeting*, May 2010.
- Design for a Compact Neutron Interferometer. *American Nuclear Society Winter Meeting*, November 2007.

Professional Societies and Board Memberships

American Nuclear Society
Materials Research Society
Member of MIT's Board of Trustees