# Jon Van Lew

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## Education

**Ph.D.** — **University of California, Los Angeles**
Mechanical Engineering
Anticipate completion of degree in 2014
4.00 GPA

**M.S. 2010** — **University of Arizona**
Mechanical Engineering
Thesis: "Transient heat delivery, storage process, and optimization of a packed bed thermocline thermal energy storage system"
3.69 GPA

**B.S. 2005** — **University of Arizona**
Mechanical Engineering
Minor in Mathematics & Art History
Cum Laude; 3.53 GPA

## Skills

Computer Software and Languages

MATLAB, FORTRAN, LaTeX, SolidWorks, SolidEdge, Pro/Engineer, ANSYS Designspace, CF Design, AutoCAD, MathCAD, Mathematica, Java, Microsoft Windows and Office Programs, and introductory knowledge of the UNIX environment and LabVIEW. Will become proficient with any language or software upon request.

Coursework

Advanced Thermodynamics, Heat Transfer Modes (Convection, Conduction, Radiation), Numerical Methods, Fuel Cell Technologies, Nuclear Engineering, Fluid Mechanics, Control Systems, Mechanical Behavior of Materials, Integrated Design/CNC Manufacturing

## Employment; Graduate Assistant

**Advisor: Dr. Mohamed Abdou** — September 2010 to Present

Packed bed thermomechanics research for Helium Cooled Pebble Bed blankets in fusion power reactors.

**Advisor: Dr. Peiwen Li** — August 2007 to August 2010

Investigated energy storage capabilities of a solar-thermal power plant. Demonstrated the feasibility of our laboratory's design concept through an analysis of the physics of the thermal storage device. This was accomplished with a computer program simulating the transient thermodynamics in the storage medium. Verified the simulation by means of designing and running a laboratory scale model.

Continued research of optimized uniform flow distribution. Established an automated data acquisition device in the Fuel Cell and Energy Laboratory which the PI has continually used for measuring and comparing the uniformity of flow.

Preliminary research on quantifying the de-agglomeration of metallic powder suspended in a low-temperature sublimable material when aerosolized via explosives.

## Employment; Teaching Assistant

Experience preparing for weekly, two-hour recitation session for undergraduate students to review homework- and exam-type exercises as well as address student questions. In the recitation, the methodology and heuristics of solving engineering problems was stressed and exemplified.

Further supervising office hours to assist undergraduate students in engineering courses. Helped guide students through example problems, allowing them to become comfortable and proficient in applying the appropriate governing equations to problems on their own.

**University of California, Los Angeles**

MAE 105A | **Introduction to Engineering Thermodynamics**
2010

**University of Arizona**

AME 331 | **Introduction to Fluid Mechanics**
2007

## Employment; Industry

Jan-Jul 2007 | **Technical Content Research Group**, Phoenix, AZ
Technical Writer
Created Operation and Maintenance Manuals for a water-booster station in Phoenix, AZ. Work involved extracting and writing pertinent technical data given by manufacturing and vendor schematics for organization into a City of Phoenix standard manual.

2005-07 | **US Monolithics**, Chandler, AZ
Mechanical Engineer
Sustained on-going data collection efforts. Performed drawing and part revisions based on in-house environmental testing, commercial unit performance, and interactions with die cast manufacturer for improvements in manufacturability. Ran material trade studies for high powered electronics in varying environments. Focused on a design requiring extreme precision while fitting into limited budget; a concentration of efforts toward proper Geometric Dimensioning and Tolerance.

2004 | **Motorola**, Chandler, AZ
Mechanical Engineer Intern
Maintenance of line (MOL) and product life management. Applied Motorola's six-sigma design guidelines to generate products for antenna base stations.

## Publications

# Articles and Chapters


[1] Li, P., Van Lew, J. T., Chan, C., Karaki, W., Stephens, J., and O'Brien, J. Similarity and generalized analysis of efficiencies of thermal energy storage systems. *Renewable Energy* (2011).

[2] Li, P., Van Lew, J. T., Karaki, W., Chan, C., Stephens, J., and Wang, Q. Generalized charts of energy storage effectiveness for thermocline heat storage tank design and calibration. *Solar Energy 85*, 9 (2011), 2130 – 2143.

[3] Li, P., Van Lew, J. T., Karaki, W., Chan, C. L., Stephens, J., and O'brien, J. E. *Developments in Heat Transfer*. InTech Open Access Publisher, 2011, ch. Transient Heat Transfer and Energy Transport in Packed Bed Thermal Storage Systems.

[4] Liu, H., Li, P., and Van Lew, J. T. Cfd study on flow distribution uniformity in fuel distributors having multiple structural bifurcations of flow channels. *International Journal of Hydrogen Energy 35*, 17 (2010), 9186 – 9198.

[5] Van Lew, J. T., Li, P., Chan, C. L., Karaki, W., and Stephens, J. Analysis of heat storage and delivery of a thermocline tank having solid filler material. *Journal of Solar Energy Engineering 133* (2011).

## Conference Proceedings

[1] Karaki, W., Van Lew, J. T., Li, P., Chan, C. L., and Stephens, J. Heat transfer in thermocline storage system with filler materials: Analytical model. vol. 2010, ASME, pp. 725–734.

[2] Van Lew, J. T., Li, P., Chan, C. L., Karaki, W., and Stephens, J. Transient heat delivery and storage process in a thermocline heat storage system. vol. 2009, ASME.

## Additional Experience

2011 | **Sixteenth International Workshop on Ceramic Breeder Blanket Interactions (CBBI-16) hosted by UCLA**
Portland, Oregon
Acting conference organizer. Also co-lead discussion on the current status and outlook of thermomechanics research and development for blanket pebble beds. http://www.fusion.ucla.edu/cbbi/cbbi16/

2010 | **China-UK Workshop on Electricity and Energy**
Suzhou, China
Presented further research on transient thermal storage simulation to the international symposium held at Xi'an Jiaotong-Liverpool University.

2010 | **Xi'an Jiaotong University research assistant**
Xi'an, China
Scholarly exchange with the prestigious Chinese university. Extended capability of transient thermal storage model with parametric studies and consideration of internal temperature gradients in the packed bed matrix.

2009 | **ASME International Mechanical Engineering Congress & Exposition**
Lake Buena Vista, Florida
Presented research on transient thermal storage simulation to the yearly conference on research and advances in mechanical engineering.

2004 | **University of Arizona directed research**
Tucson, Arizona
Jet-ejector entrainment undergraduate research under advisor Dr. Francis H. Champagne. Gained knowledge of digital data acquisition and signal processing; data collection methods and instrumentation layout.

## Miscellaneous Awards and Honors

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| 2010 | University of California, Los Angeles MAE Research Fellowship |
| 2008 | University of Arizona Graduate College Fellowship |
| 2008 | Study Abroad Scholarship to study Chinese in Nanjing, China |
| 2007-2009 | Graduate Registration Scholarship, University of Arizona |
| 2004 | $1^{st}$ place in University of Arizona Geometry Fair |
| 2001, 2005 | University of Arizona Engineering Honors Convocation |