Required/Preferred Qualifications for Position 1 & 2 (Revised Posting No. 7/1/16)

Ph.D. degree required in Aerospace Engineering and Mechanics or other appropriate engineering degree. Degree in the physical sciences, mathematics or computer science, may be considered if appropriate to the project.

Postdoctoral Associate Position No. 1

A Postdoctoral Associate is sought for research on a MURI project: “4-D Electromagnetic Origami” (FY16 MURI) with Richard James at the University of Minnesota. This concerns shape-changing antennas. We will develop theoretical and computational methods to design such surfaces based on the concept of “objective structures” and develop strategies for actuation using shape memory materials. The designs will link to schemes for radiation design, i.e., solutions of Maxwell’s equations that radiate from these structures. An ideal candidate has broad knowledge of theoretical mechanics and applied mathematics. A familiarity with phase transformations and shape memory, modern approaches to plate and shell theories, advanced large-deformation structural mechanics, differential geometry, or radiation design would be an added plus. A suitable postdoc would specialize in one of these areas, but preference will be given for someone who wants also to take on the big picture by learning about, and becoming involved in, diverse aspects of the research. The research is collaborative with researchers from Caltech, CMU and Princeton. (Refs: J. Mech. Phys. Solids 54 (2006), 2354; Nature 502 (2013), 85; Science 348 (2015), 968; Acta. Cryst. A72 (2016), 190.)

Postdoctoral Associate Position No. 2

A Postdoctoral Associate is sought for a research on energy conversion: "The direct conversion of heat to electricity using fast switching of ferroelectric oxides” with Profs. Bharat Jalan and Richard James. This research involves, first, the discovery of an oxide having a phase transformation that satisfies strong conditions of compatibility between phases recently associated with a high degree of reversibility of the transformation (Nature 502 (2013), 85; Science 348 (2015)). We intend to develop bulk and epitaxial thin film methods including sol-gel and molecular beam epitaxy for this purpose. We will also develop theory and prototypes for heat-to-electricity energy conversion devices. A postdoc in this area would specialize on the experimental side (films/sol-gel) or on theory of phase transformations/thermodynamics of energy conversion, but preference is given for someone who wants also to take on the big picture by learning about, and becoming involved in, diverse aspects of the research.

This postdoctoral position includes possible exchange visits to the University of Kiel, Germany, under a related project jointly with Prof. Dr. Eckhard Quandt, the "Reinhart Koselleck Project on Crystallographically Compatible Ceramic Shape Memory Materials”, and with Prof. Xian Sherry Chen at the Hong Kong University of Science and Technology. See also, http://environment.umn.edu/news/four-university-private-sector-partnerships-win-grants-to-advance-renewable-electricity-in-minnesota/
Applications

Interested individuals should e-mail applications to Professor Richard James at: james@aem.umn.edu

In addition, applications are required to be submitted online Office of Human Resources at the University of Minnesota at: http://humanresources.umn.edu/. To be considered for this position, Go to this link: http://www.humanresources.umn.edu/jobs; To view the posting, click on External Faculty and Staff Applicants, then key in 310863 (Job Opening ID) or key word: Aerospace. *If searching for the Job ID no. or key word, it may be necessary to broaden the "Jobs Posted Within" range.*

Applications should include:

1) Cover Letter/Letter of Intent (Attention of Prof. Richard James)

2) Resume/Curriculum Vitae

3) Transcripts for all degrees (or proof of degrees when transcripts are not available)

4) Contact information for 3 professional references

Application Deadline: Applications will be accepted until position is filled.

Diversity

The University recognizes and values the importance of diversity and inclusion in enriching the employment experience of its employees and in supporting the academic mission. The University is committed to attracting and retaining employees with varying identities and backgrounds.

The University of Minnesota provides equal access to and opportunity in its programs, facilities, and employment without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, veteran status, sexual orientation, gender identity, or gender expression. To learn more about diversity at the U: http://diversity.umn.edu.

Background Check Information

Any offer of employment is contingent upon the successful completion of a background check. Our presumption is that prospective employees are eligible to work here. Criminal convictions do not automatically disqualify finalists from employment.