

Career Goal:

Obtain an academic research and teaching position at a university in the field of solid mechanics.

Education:

- **Bachelors in Physics (Honors)** May 2006
The University of Arizona, Tucson, USA GPA 3.63
- **Masters/Doctorate in Civil and Environmental Engineering** Sept 2006
Carnegie Mellon University, Pittsburgh, USA

Research:

- **The 2Mass Wolf-Rayet Line Detection Survey.** 2003-04
 - The overall goal was to cover 10 square degrees of the plane, using around 20 clear nights for observation with Pisces on the 90" over the next 2 years, including 5 this June. My main work was to take a lead role in the selection of target-rich fields.
- **Simulation of Gravitational Interaction of Astronomical Bodies.** 2004
 - Research focus was development of a high performance numerical algorithm to solve astrophysical problems. A general purpose numerical library based on pseudo-spectral methods was completed. The work required me to use Linux, C-Programming, write HTML Code and Java applets. We have tested the library by solving hydrodynamic, self-gravity, and magneto-hydrodynamic problems.
- **Study of required Ionization Rate in RGA to detect atoms.** 2005
 - I had the experience of working with the RGA Faraday cup detector and RGA behavior. The focus was to determine the ionization rate do we need to detect atom diffraction with the RGA.
- **Creep and Triaxial experimentation and Finite Element Modeling of Subglacial tills.** 2005- present
 - I worked on the creep analysis of glacier tills from Tiskilwa and Skypilot using creep testing cell to find and model the material and obtain creep parameters of the above mentioned till samples. Later, I progressed and obtained the opportunity to perform triaxial tests on the subglacial till samples. The output of the experiments to model the flow- behavior of the glacier using Finite Element Analysis and the concept of Disturbance as proposed by Dr. C S Desai.
- **Computing the Madelung Constant for an arbitrary 2D crystal.** 2005
 - Worked on a C-language computer code for the Madelung Sum of arbitrary crystals. My work involved finding the Madelung Constant for crystal lattices with angles ranging from 5° to 90° . I confirmed the "natural" hexagonal arrangement as found in nature based on the Madelung Sum calculations. The project was of particular interest because most of present day solid- state physics is built from the "whole" to the interaction of their constituent atoms, but in my project we looked at the property of the crystal by simulating interaction of the individual atoms.
- **Application of Disturbed State Concept to crystal epitaxy.** 2005- 2006
 - Conducted experiments regarding epitaxial interaction of layers of idealized crystals (metal ball bearings on non magnetic plates). The work is giving us insight as to how one can apply the Disturbed State Concept model to this particular physical problem of solid- state physics.
- **Pb-Sn Solder Joint Testing.** 2006
 - Conducting experiments on Pb-Sn solder joints using thermomechanical testing device in Dr. C S Desai's solder testing laboratory. Modeling of the solder behavior under horizontal and vertical loading conditions using Hierarchical Single Surface model and Disturbed State Concept will provide us an insight into the behavior of the solder joint which is used in electronic packaging.

Relevant Coursework:

- Thermodynamics, Programming in Physics, Quantum Mechanics, Electrodynamics, Statics, Mechanics of solids, and Honors Thesis with Dr. C S Desai on Pb-Sn Solder Joint Testing. Computational Skills:
- C, C++, Fortran, UNIX, MATLAB, RISA3D, HTML and JAVA, PC, Linux and Mac

Publications:

- *Bee's Life and Other Poems*. Delhi/Kolkata/London: Sampark. 2004
- *Pancendriya: Five Senses A Collection of Poems*. New Delhi: Konark Publications. 2006
- *Anama: The Nameless. A screenplay*. Kolkata: Porobhash Publications 2006
- Short story published in Hindustantimes.com, online version of India's leading national newspaper. 2005

Achievements:

- Graduate Studies Scholarship, Carnegie Mellon University Fall 2006
- Purviance, Glenn C. Scholarship. University of Arizona Fall 2004 and Spring 2005
- The Cubic Corporation Scholarship. University of Arizona Spring 2004
- George Gregson Scholarship. University of Arizona Fall 2004
- Selection in Science Talent national-level exhibition, Allahabad by NCERT
For making a working model of Bio-gas plant at the Regional Institute
of Education, Mysore in July 2001 (Jointly with Yuvraj, Nishith and Shishir) Spring 2002

References: Available upon request