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| **Author:** | **Time:** | **Institution:** | **Abstract:** |
| Registration | 8:00 - 8:55 am | | |
| "Welcome Address"  John Zwart | 9:00 am | Dordt College, Sioux Center, IA |  |
| John Stroh and Zak Rajput, Peter Bruecken - Advisor | 9:10 am | Bettendorf High School | **Title:**  "Radiation Damage in Optical Fibers."  Quarts fibers were exposed neutron and photon radiation and tested for optical degradation. After about 20 Giga-rads of neutron and gamma radiation, damage to teh fibers was detected. The level of damage was wavelength specific. The source of exposure was analyzed, and the results compared to some previous radiation damage tests. |
| Franklin D. Trumpy | 9:35am | Des Moines Area Community College | **Title:**  "Stirling Cycle Heat Engines in the Classroom"  The history and present application of hot air engines, now commonly called Stirling cycle engines, will be reviewed briefly. Emphasis will be on the Stirling cycle as a teaching tool to demonstrate and clarify the thermodynamic principles of heat engines in introductory physics courses. Model engines using alcohol and sunlight as heat sources will be demonstrated (weather permitting). |
| Dave Olsgaard | 10:00 am | Simpson College | **Title: "**Assume a Spherical Rocket:  Context Connections in the Laboratory."   A series of six laboratory exercises covering mostly traditional topics in the introductory mechanics lab is presented in the context of model rocketry.  The final goal of the project is to produce a complete kinematic model of an actual model rocket's flight and compare it to measured data. |
| **Break -** | 10:25 am | | |
| David Meltzer | 10:40 am | Iowa State University | I**nvited Talk: "**Research in Physics Education and the Connection to Classroom Teaching."  In recent years, systematic research in physics education has led to advances in our understanding of the learning process.  Careful investigations of students' reasoning along with assessments of innovative instructional methods have provided insights into more effective teaching strategies.  I will outline the principal goals and methods of this research, and describe how it can help lead to improvements in classroom teaching.  With examples drawn from investigations we have carried out at Iowa State University, I will illustrate the research process and show how it is helping us develop improved curricula and instructional methods. |
| Arnold Sikkema | 11:40 am | Dordt College | **Title:**  "Computational Physics and Ferromagnetic Domains."  Today's PCs allow us to open certain investigations and techniques earlier than before to students.  I'll discuss a three-hour laboratory exercise in which students successfully, and with excitement, modeled and learned about two-dimensional ferromagnetic materials with periodic boundary conditions using a spreadsheet.  Magnetic domains are easily seen to form as time progresses, and net magnetization and domain size are "measured as functions of time.  Many refinements can be made to the model ( such as temperature, external field, number of nearest neighbors ), but the main point of the activity is to introduce students to the field of computational physics and a few or its widely-used techniques. |
| Lunch  **Buffet lunch at "Valentino's". $6.09 and free soft drinks.  We have reservations and our own room.** | 12:30 - 1:30 pm |  |  |
| **IAAPT BUSINESS MEETING AND ELECTION OF OFFICERS** | 1:30 - 2:00 pm |  |  |
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