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| **Author:** | **Time:** | **Institution:** | **Abstract:** |
| Registration | 8:30-9:00 | | |
| "Welcome Address, by Dr. Tom Boggess:  *Associate Chair, Dept. of Physics and Astronomy* | 9:00-9:15 | University of Iowa |  |
| Peter Bruecken and John Hauptman | 9:15-9:35 | Bettendorf High School  Iowa State University | **Title:** "QuarkNet Iowa 2000".  My presentation will be titled QuarkNet-Iowa 2000 and my presentation will review last summer's QuarkNet activities and preview the future plans for QuarkNet in Iowa. |
| David Meltzer | 9:35-9:55 | Department of Physics & Astronomy, Iowa State University | **Title:**  "Learning Gains in Physics in Relation to Students' Mathematics Skills".  I have carried out a study of the improvement of student understanding of electrical concepts in relation to (1)  their pre-instruction knowledge of those concepts, and (2)  their pre-instruction scores on a test of algebraic skills.  Four separate student samples were examined.  In each case, the students' normalized learning were uncorrelated with their performance on a physics concepts pretest.  However, in three of the four samples there was strong evidence of correlation between normalized learning gains and preinstruction mathematical skills.  This was despite the fact that the diagnostic exam used to measure physics understanding was almost entirely qualitative in nature, requiring virtually no calculations of any type.  Possible implications of these results will be discussed. |
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| Frank Peterson | 9:55-10:15 | Iowa State University | **Title:**  "Using Digital Oscilloscopes in Introductory Physics Labs".  We are in the process of converting various experiments from high quality but aging analog oscilloscopes containing a cathode ray tube (CTR) to modern digital oscilloscopes (Tektronix model TDS 210).  These lovely instruments have a (remarkable) maximum sampling rate of 1  gigasample per sec and provide some automatic measurement features and convenient hardcopy printout.  We will discuss the advantages and disadvantages of these new instruments, and the revisions in the instructional materials related to their introduction into our introductory physics laboratories. |
| Break | 10:15-10:25 | | |
| Michael Petersen | 10:25-10:45 | Ames High School | **Title:**  "Use of a Bicycle Lab for Mathematical and Graphical Analysis of Linear Motion".  A bicycle can be used to help physics students gain a better understanding of mathematical and graphical analysis of linear motion.  All students are involved in the lab, even though only one bicycle is used.  Data are presented for:  1)  average speed during a round trip;  2)  constant speed during a one-way trip;  3)  uniform acceleration from rest. |
| "Key Note Address", by Professor Paul Canfield | 10:45-11:25 | Department of Physics & Astronomy, Iowa State University | **Title:**  "The Beauty and Physics Manifest in Single Crystals of Novel Materials".  To understand the intrinsic properties of new materials simple measurements on single phase, single crystalline samples are vital.  In this talk I will review some of the basic questions that have to be addresses as part of a new materials research effort:  "What should I try to make?  How should I make it?  Is it the "right" stuff?  Is it interesting?  What next?".  I will try to give a sense of the joys associated with playing around with periodic table in an effort to design/discover new materials.  In addition I will present lots of pictures of pretty crystals for the sheer pleasure of showing what can be done with simple lab equipment.  "Oh, my", "Ahhhh", "Wow", and "Amen", and other such comments are all encouraged. |
| Jay Cutler | 11:25-11:45 | Charles City High School | **Title:**  "Video Presentation-Third International Math and Science Study and Misleading Conclusions in a 9th Grade Physical Science Worksheet".  A presentation of the Third International Math and Science Study video tapes of US, German, and Japanese classrooms.  Also, a ninth grade physical science worksheet about acceleration and momentum and possible misleading conclusion. |
| Bill Cox | 11:45-12:05 | Dowling High School Des Moines | **Title:**  "Enrollment Trends in HS Physics".  My look back at over 33 years at Dowling; the ebbs and flow of enrollment, male/female comparisons, and evolution of different courses.  Comparison of local observations to national trends will also be discussed. |
| Lunch  *Room 301 Van Allen* | 12:05-1:00 | | |
| Business Meeting of the AAPT-Iowa Section | 1:00-1:30 |  | 1)  Election of officers 2)  Discussion of future meeting dates 3)  Secretary and Treasurer's report 4)  Other business. |
| Ron Vogel, Dale Stille, Craig Kletzing | 1:30-3:00+ | University of Iowa | **Title:**  "Tour of undergraduate laboratories at the University of Iowa".  Featured equipment will be data acquisition systems, video capture, and digital oscilloscopes and their using in various undergraduate laboratories that have been developed by the University of Iowa Physics Department in the last two years.  Also featured will be the Iowa Robotic Observatory. |