INFORMATION FOR THE ESSAY COMPETITION

BACKGROUND

Recently there were many Science & Technology (S&T) discussions concerning the status of the scientific and engineering workforce in America. Concerns have been and are expressed whether or not the United States is training enough scientists and engineers for the future economy.

At a briefing with the Congressional Research and Development Caucus, July 15, 2004, Judy Biggert (R-IL), the chair of the House Science Subcommittee on Energy, spoke of the continuing concern about the replacement of retiring members of the current S & T workforce. Alos of concern are the many foreign-born S & T graduates of U.S. institutions who, while once remaining in America, are now returning home. The future of the S & T workforce is an important question, she said, with “everything on line” including our nation’s economy, living standard, and security.

Biggert’s comments were seconded by Rush Holt’s (D-NJ) remarks. He pointed out, that the international ranking of the U.S. with citizens 18-26 years old educated in S & T fields has dropped considerably in the last 25 years. In particular he said, that decisions being made now by middle grade students will have important ramifications on the future S & T workforce.

(For further information on this issue see:
http://www.aps.org/apsnews/0704/070413.cfm,
http://www.aip.org/fyi/2004/087.html,
http://www.reseracgcaucus.org/schedule/04July15/default.asp )

THE COMPETITION

In order to bring this issue to the attention of the younger generation and generate interest in a career in the S & T field, the Four Corners Section of the American Physical Society will sponsor a high school essay competition addressing the benefits for the society and individuals resulting from discoveries in Physics.

We encourage all Physics teachers to incorporate this essay contest into the curriculum to provide added incentives in class for the students, as well as to permit their work on the essay be counted as part of their physics-class assignments.

The theme of the essay competition will be: “Discoveries in Physics and their Impact on Society and the Lives and Careers of Individuals”

What should be addressed in the essay:

1. The special discovery in Physics (For example: X-rays, in this case describe the basics behind generation of an X-ray beam, i.e. X-ray tube, in modern times: synchrotron radiation, thorough research of the discovery, you want to describe, will enhance your chance to win).

2. Describe the impact on Society (Quite obvious in this case for medical use) . You could also choose a discovery which had also negative impacts (atomic bombs, for example) and elaborate on it.

3. Address the impact the discovery could have and your life or career. If you choose a career in the medical field, the impact of discoveries like X-rays or Magnetic Resonance Imaging (MRI) are quite obvious, but discoveries and principles of physics may be very important in any career, you may pursue, and may effect your life, though it may not be very obvious. To find this hidden “variables” is the challenge of this competition, and may lead to an interest to pursue a career in S & T, or to new insights and appreciation, what someone, like Einstein, has done for all of us, and thus provide the motivation to join in the celebration of the World Year of Physics in 2005: Einstein in the 21st Century.
RULES FOR THE ESSAY COMPETITION AND FOR JUDGING

• The essay should not be longer than 4 pages (without figures and bibliography, written in 12-pt Times New Roman font with 1 ½ line spacing

• The essays should be sent to one of the two Co-Chairs of the judging committee of the state where the participant resides (The Co-chairs as well as the members of the judging committees for each state are listed with name, address, phone and fax number, and e-mail address on this webpage.) Questions can be directed to any member of the state judging committee

• The judges will evaluate the validity of the physics and factual content of the essay as well as the originality of the thoughts expressed concerning the impact on society, and the lives and careers of individuals. Equally important is the quality of writing: complete sentences, grammar, and correct spelling

• The decisions of the judges are final.

PRIZES

There will be a winner from each state, who will receive a prize of $100 as well as an invitation to present their essay and receive the prize at the 4 Corners section meeting in fall of 2005 at the University of Colorado in Boulder. The 4 Corners Section will reimburse the travel expenses, but any winner, who is a minor, must send in a consent form signed by her/his parents to assume legal liability and to acknowledge, that the 4 Corners Section cannot provide supervision of the minor.

The winner from Utah will be offered a scholarship, if she/he will attend Utah Valley State College. The winner from Colorado will be offered a scholarship, if she/he will attend Colorado State University and choose a major in physics. In addition, the winner from Colorado will be invited by NIST (National Institute for Standards and Technology) and the winner from New Mexico by Sandia National Laboratory to visit the respective laboratory and talk about her/his essay, as well as have a tour of the lab.

SPONSORS

Four Corners Section of the American Physical Society, Forum on Education of the American Physical Society, College of Natural Sciences of Colorado State University, Department of Physics, Colorado State University, Utah Valley State College, Brigham Young University, Department of Physics and Astronomy, Denver University, National Institute of Standards and Technology, Senator Wayne Allard, Congressman Mark Udall, Congresswoman Diana DeGette, City of Fort Collins, Corbis-Bettmann Company, The Richman Agency, The Jewish National & University Library at the Hebrew University of Jerusalem, Sandia National Laboratory