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Summary of the AAHP Special Session on Health Physics Education: Status of Academic Programs, Student Recruitment, Funding, and Accreditation

Jim Bogard, Past President, AAHP

The topic of this year's American Academy of Health Physics (AAHP) Special Session at the 52nd Annual Meeting of the Health Physics Society (HPS) in Portland, Oregon, was chosen to provide a forum for discussing academic training needs for qualified health physicists to address the prospect of increased demand for our professionals as the result of, among other things, an incipient resurgence of nuclear power in the United States. Academic programs in health physics have contracted over the last decade because a stagnant job market, problematic federal funding for these programs, and the attraction of related professional disciplines have combined to direct student interest away from the health physics field. The Special Session brought together the directors of health physics academic programs, representatives of funding agencies, and those who interface with government on behalf of our professional interests. The morning session, chaired by Derek Jokisch (associate professor of physics and health physics, Francis Marion University) was devoted to discussions of academic programs, with an emphasis on strategies for student recruitment and retention, funding, and the *pros* and *cons* of program accreditation. The afternoon session, chaired by Wes Bolch (professor and Health Physics Program Coordinator, University of Florida) focused on academic funding and accreditation issues. Both the morning and afternoon sessions concluded with a round-table discussion, allowing attendees to share their own experiences and ask questions of the speakers.

Kevin Nelson, HPS president-elect and past chair of the Human Capital Crisis Task Force, began the morning session by pointing out that demand for health physicists exceeds even that for nuclear engineers, but engineering graduates are increasing while those in health physics remains steady. (The report of the task force is on the HPS Web site.) Speakers from university academic programs described some unique funding, recruiting, and student-retention strategies, including Web access to a virtual HPS expert (University of Missouri-Columbia); sponsorship of an on-campus Physics Scholars Institute and support for students attending professional conferences (Francis Marion University); and participation by TAMU faculty and grad students in high school career days and job fairs, coupled with the successful pursuit of corporate grants to support a full-time recruitment coordinator. Most of the funding support for health physics graduate students at the University of Tennessee-Knoxville is for research into space radiation protection. ABET accreditation was obtained in 2003 at Oregon State University and is particularly important, even for small programs like that at Bloomsburg University, but has not been pursued at some other institutions because of the effort required. The panel discussion pointed out the importance of on-campus reactors, which attract students from fields like archeology and neutron science because of the opportunities for hands-on experience. Students are also sometimes attracted by undergraduate courses such as that at Oregon State University on societal aspects of radiation, which can change attitudes about the nuclear sciences.

Rich Brey (Idaho State University) started the afternoon session with a discussion of academic accreditation, noting that the ABET accrediting process is a pain, but worth it and not so demanding to maintain after being granted. John Gutteridge (U.S. Department of Energy [DOE]) reviewed the history of DOE support for university health physics programs and discussed the Nuclear Energy Research Initiative (NERI-

C), which has folded university education assistance into R&D program funded research. John expressed the hope that most successful DOE programs supporting health physics education (including matching grants) will resurge. T.E. Johnson described Colorado State University's (CSU) experience in obtaining support as an Educational Resource Center from the National Institute for Occupational Safety and Health, which was possible because of the close relationship between CSU's health physics and industrial hygiene training programs. Keith Dinger discussed the HPS Government Relations Program and some successes (persuading the Environmental Protection Agency to include environmental health physics in its Science to Achieve Results Fellowship for Graduate Environmental Study) and challenges (restoring DOE funding directed to university education assistance in the 2008 budget). DOE's reluctance to respond to congressional direction has resulted in competing bills in the House (asking that $15 million go to the Nuclear Regulatory Commission to fund health physics fellowships and scholarships) and the Senate (directing $15 million to the DOE for university program support of health physics). Craig Williamson offered an assessment of needs (including common criteria for defining health physics academic programs, degree enrollment trends and workforce needs assessments, and HPS focus groups for defining skill sets and degree requirements for different types of health physicists) from the South Carolina Universities Research and Education Foundation perspective. We need to maintain annually our health physics education reference book statistics and to establish groups of health physics consumers (nuclear power, governmental agencies, DOE laboratories) that could advise the health physics academic community of their projected employment needs on an annual or semiannual basis and support the HPS Government Relations Committee in its work on our behalf. Derek Jokisch concluded the formal presentations with a description of HPS support for academic education. Jokisch noted that, whereas only four of seven HPS fellowships were awarded a few years ago for lack of applicants, there were over 20 applicants for the HPS fellowships this year. He also observed that student HPS branches are rebounding and student attendance at the HPS annual meeting has increased significantly. The panel discussion concluding this session emphasized that, although we get good support from both parties in Congress and have good relations with congressional staffers, undersecretaries of DOE are less predictable in their support of health physics academic programs. We would help our promotion of support for these programs by maintaining good data showing the number of students who receive funding support and who subsequently stay in the profession.

The AAHP's Special Session is the primary responsibility of the Academy's immediate past president. I chose the topic, but, since education isn't my field, I enlisted the help of Wes and Derek. They did an outstanding job as co-chairs, setting the agenda, and arranging speakers. The session was very well attended, with standing room only at times, indicating the intense level of interest and concern about academic training for health physicists.

I would especially like to express my gratitude to all our speakers, some of whom made a significant effort to be able to attend and address the issue of health physics academic training.

We have again this year posted the abstracts and PDFs of the presentation visuals on the AAHP Web site (www.hps1.org/aahp/). Have a look at the presentations, if you missed this important discussion.

ABHP Examination No. 1 – June 1960

An additional 10-point question from the first ABHP exam is listed below. Candidates were required to answer 15 out of 20 10-point questions, plus a 50-point essay in an exam time limit of three hours. See the following "CHP Corners" for previously published questions: April 2006, April 2007, and May 2007.

10. a) The table below lists the NBS Handbook No. 69 MPC in air for the major bone seeking isotopes present at a chemical processing plant which is recovering uranium from spent reactor fuel. (Fuel was originally highly enriched in U^{235}). In any contamination incident at the plant, all of the isotopes listed are usually present. It has been found that the average percentage of the total activity of each isotope is as listed in the table.

ISOTOPES	160hr. NBS Hb. No 69 (MPC_a)	AVERAGE % TOTAL ACTIVITY
Sr^{89}	10^{-9} μc/cc	7
Sr^{90}	10^{-10}	1
Y^{91}	10^{-8}	10
Zr^{95}	6×10^{-8}	15
Nb^{95}	3×10^{-8}	25
Ce^{144}	3×10^{-8}	13
Pm^{147}	2×10^{-8}	2

Compute the MPC for 168 hr/week occupational exposure that should be imposed on the plant considering bone as the critical organ.

b) What is the allowable working time in a radiation field consisting of 45 mrad/hr of gamma, 4 mrad/hr of fast neutrons and 4000 thermal neutron per sq. cm. per sec, if a total exposure of 450 mrem has been specified for the job?