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# Update on NIST Beta-Particle Dosimetry Standards and Calibrations

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## Standards Development

A new medical-protocol ISO Working Group has been started within Technical Committee 85 (Nuclear Energy), Subcommittee 2 (Radiation Protection). The name of the new working group is Ionizing Radiation Dosimetry and Protocols in Medical Applications and it has been divided into two Sub Groups: SG1 "Dosimetry and Protocols in Clinical Radiation Protection Project: Model of Dosimetry Evaluation in Paedriatic Computed Tomography Examinations," Project leader B. Aubert; SG2 "Clinical Dosimetry in Radiation Therapy Project: Clinical Dosimetry - Beta Radiation Sources for Brachytherapy," Project leader C. Soares. The convenor is B. Aubert of IRSN in France and the co-convener is C.G. Soares of NIST. There have now been two full meetings of the new WG22; one was held in Paris at IRSN in Fontenay-aux-Roses on October 13-15, 2004, and a second on March 17-18, 2005 in Gaithersburg, MD USA at NIST. In addition, a third, shorter meeting was held in Beijing at the TC85/SC2 meeting for new members of the group from China, Japan and Spain. At the Paris meeting, the draft document "Clinical Dosimetry - Beta Radiation Sources for Brachytherapy" was considered in detail by SG2 members representing France, the US, Germany and the Netherlands, and a list of possible additional members of the Sub Group was also prepared that the project leader has contacted about participation. A second meeting of ISO TC85/SC2/WG22/SG2 was held in Gaithersburg, MD USA at NIST on March 17-18, 2005. Members present represented the US, Germany, France, Sweden, the Netherlands, and Mexico. The revised draft (version 2) was discussed at length, including comments emailed by members who could not be present. The draft is still thought to be too long and to contain too much detail on intravascular brachytherapy relative to ophthalmic applications. Major rearrangements of the structure were agreed upon, and assignments were made so as to have a draft ready for vote after the next scheduled meeting in Delft. The date of this next meeting of the Sub Group was rescheduled to October 12-14, 2005. Another meeting has been provisionally scheduled for June 2006 in at the TC85 meeting in Ottawa to consider comments from the vote. It was also resolved in Beijing that there would be a New Work Item Proposal submitted (probably by either by Spain or the US) on a more general Protocols for Diagnostic Radiology.

C.G. Soares has also been named to chair the ANSI working group revising ANSI/HPS N13.11, "Personnel Dosimetry Performance - Criteria for Testing," which is the basis for personal-dosimetry performance testing in the United States. Now in its third edition, this standard has been in place since 1983. Testing under this standard is administered by the National Voluntary Accreditation Program (NVLAP), and accreditation of dosimetry processors under this program is required by US Nuclear Regulatory Commission (NRC) regulations. The US Department of Energy (DOE) also maintains a testing program for its laboratories and contractors, administered by the Department of Energy Laboratory Accreditation Program (DOELAP). A focus in recent years has been the modification of ANSI/HPS N13.11 to allow acceptance by both testing programs in order to bring harmonization to US personal-dosimeter processing testing. The testing philosophy of ANSI N13.11 has always combined elements of type testing and routine performance testing and is thus different from the testing philosophy used in the rest of the world.

Comparisons

NIST has completed participation in a EUROMET sponsored protection-beta-particle dosimetry comparison coordinated by PTB and involving 8 NMIs. The comparison is scheduled for completion in 2006. In addition, a bilateral comparison with NMi on beta-brachytherapy dosimetry is ongoing, and NIST has agreed to participate in another comparison with PTB on beta-brachytherapy dosimetry.