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MEETING NOTES

Abstracts from the Fourth Annual Meeting of the Council on Ionizing Radiation Measurements and Standards (CIRMS)

The Council on Ionizing Radiation Measurements and Standards held its fourth annual meeting at the National Institute of Standards and Technology, Gaithersburg, Maryland on November 28-30, 1995. The organization represents thousands of users of ionizing radiation and radioactive sources engaged in industrial radiation processing and sterilization, medical radiation diagnostics and therapy, nuclear power, and worker radiation protection programs. CIRMS provides a forum for discussing ionizing radiation issues; identifying, defining and prioritizing needed work; disseminating information on standards; and organizing workshops and meetings to advance ionizing radiation technology. ¶ Over 100 participants attended the meeting, which highlighted advanced techniques in radiation dosimetry and radioactivity measurements for the different ionizing radiation communities. Representatives attended from 28 corporations, 10 federal agencies, 8 national laboratories, 12 universities, and 1 state. Advanced techniques and future measurement needs were discussed in four sessions: (I) Medical Dosimetry, Radiology and Nuclear Medicine, (II) Occupational and Radiation Protection Dosimetry, (III) Measurement Techniques for Public and Environmental Radiation Protection, and (IV) Measurement Techniques for Radiation Effects on Materials. An additional session (Session V) was added to this annual meeting on the implementation of ISO 9000 for those CIRMS members involved in instrument and product manufacturing, and those providing radiation measurement services. Abstracts are also included from the poster session (Session VI) held on the final day of the meeting. The 4th Annual Meeting was organized by the Chairman of the Science and Technology Committee, Mr. Joseph C. McDonald of the Battelle Pacific Northwest Laboratory.

MAT/NIST ^{3}H-standard efficiency tracing method. Results of the calibration, including a thorough uncertainty analysis, are given. The standards prepared during this study are gravimetrically related to two others which have been calibrated at NIST. The first calibration (in 1968) was based on microcalorimetry using an assumed average beta-particle decay energy. The second (1984) was performed with the CIEMAT/NIST ^{3}H-standard efficiency tracing method and LS spectrometry. Careful reanalysis of these experimental data using the latest available nuclear data have allowed for the first experimental determination of the half-life of ^{63}Ni by radioactive decay. Based on these three values, a half-life of 101.06 ± 1.97 a has been determined. Combining this new value and data from other half-life measurements, the ^{63}Ni half-life has been critically evaluated, resulting in a recommended value of 101.1 ± 1.4 a. A review of NBS/NIST standardizations of ^{63}Ni over the past 27 years has been performed and the results reported. Despite the length of time over which these calibrations were performed and the fact that different methods were used (microcalorimetry and LS spectrometry), excellent agreement exists between the three standards.

The Standardization of ^{63}Ni by Liquid Scintillation Spectrometry With ^{3}H- Standard Efficiency Tracing: A New Calibration and Review of Data From Calibrations Over the Past 27 Years

B.E. Zimmerman and R. Collé

Ionizing Radiation Division, Physics Laboratory, National Institute of Standards and Technology

A new calibration of the low-energy (66.945 ± 0.004 keV) beta-particle emitter ^{63}Ni has recently been performed at NIST using 4πβ liquid scintillation (LS) spectrometry with the CIE-

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