

Radioactivity Standards Laboratory  
CSIR–NML  
Cape Town, South Africa

## **Review of the activities at the CSIR–National Metrology Laboratory (June 2003 to April 2005)**

Contribution to the 18th meeting of Section II, CCRI , May 2005

### **Staff Members**

B.R.S. Simpson and W.M. van Wyngaardt

### **International Activities**

- Participated in the ICRM 2003 conference held in Dublin, Ireland.
- Attended the TCRI session of the APMP congress held in Singapore in December 2003.
- Attended the ICRM Executive Board (EB) meeting held in Oxford, UK, during May 2004 and the ICRM EB/Scientific committee meetings held at the NPL, UK in February 2005.
- Participated in the BIPM full-scale international comparisons of  $^{54}\text{Mn}$ ,  $^{90}\text{Y}$ ,  $^{241}\text{Am}$ ,  $^{125}\text{I}$  and  $^{32}\text{P}$  activity measurements.
- Participated in an APMP regional key comparison of  $^{139}\text{Ce}$  activity measurement. Also an APMP regional project to determine ionization chamber calibration factors for  $^{51}\text{Cr}$ ,  $^{57}\text{Co}$ ,  $^{134}\text{Cs}$  and  $^{137}\text{Cs}$ .
- Gave three presentations at the CCRI Section II Activity Comparisons Workshop held at the BIPM in November 2004.
- Reviewed the radioactivity CMC submissions of the SIM and APMP regions, and also Belarus and Cuba of COOMET, on behalf of SADC MET.
- Participated in an international comparison of calculated spectra of 835 keV photons in a liquid scintillator.
- In the process of preparing two papers that were accepted for the ICRM 2005 conference (one oral, one poster).

**Research, maintenance of standards and laboratory services**

- In February 2004 the laboratory underwent a three day assessment, together with an international technical expert, and received accreditation that complies with ISO/IEC 17025. A six month follow-up assessment was successful.
- Measured the activity concentration of  $^{90}\text{Y}$  solution samples for ANSTO, Australia by the TDCR efficiency calculation technique.
- Prepared  $^{131}\text{I}$  capsule standards for a national comparison exercise among local hospital nuclear medicine departments. This work was presented at the local congress of the South African Association for Physicists in Medicine and Biology (SAAPMB) in 2004.
- Investigated methods for extracting the activities of mixtures of pure beta-emitting radionuclides.
- Prepared standards of  $^{57}\text{Co}$  for a medical physics company. Measured the activity of  $^{131}\text{I}$ ,  $^{90}\text{Y}$  and  $^{99}\text{Mo}$  solutions for a reactor-based isotope production facility. Calibrated two Ionization Chambers for  $^{123}\text{I}$  for an accelerator-based isotope production facility and supplied a  $^{137}\text{Cs}$  calibration check source.