

**IRD – Instituto de Radioproteção e Dosimetria****LNMRI – Laboratório Nacional de Metrologia das Radiações Ionizantes****LN – Laboratório de Nêutrons****Progress Report 2003-2005****1. Routine calibration of neutron survey meters and neutron pocket dosimeters**

In order to attend our national regulations, up to now were performed the routine calibration of 240 equipments.

**2. Neutron sample irradiation**

200 samples of different kind used by other research groups were irradiated.

**3. IRD albedo neutron dosimeter – New quantities tests**

The majority of the tests were done for the IRD albedo neutron dosimeter that was developed do make measurements in terms of Hp(10), personal dose equivalent.

**4. Monte Carlo calculations**

The Monte Carlo code MCNP is been used to derive new values of the correction factors from oxygen and sulphur fast neutron absorption, neutron leakage from the bath and neutron source capture.

**5. Manganese Sulphate Bath Technique**

Some changes in manganese sulphate bath procedures were done in order to bring better results. Several measurements were done through these years to evaluate stability of the system. A new multi channel analyzer will be reaching soon to be added to system computational system. After Peer Review process in LN/LNMRI, which took place in 2004/9/7, some changes were implemented to correct non-conformities marked by the reviewers. To attend recommendations, A new program is been used to manager all the data from equipments and calibrations from our lab.

Information on the LNMRI/LN CMC was sent to Dr Lisa Karan and it will be probably changed because there are some doubts that persist yet.

**6. Publications**

1) Leite, S.P.; Pereira, W. W.; Fonseca, E. S.; Nogueira, T. M., *Cálculo de Correções da Taxa de Emissão de Fontes de Nêutrons Medida no Sistema Banho de Sulfato de Manganês do LN-IRD*. In: VII ENAN – National Meeting on Nuclear Applications.

The following papers will be presented at VII ENAN – National Meeting on Nuclear Applications August 28 to September 02, 2005, Santos– SP - Brazil

2) Leite, J. O.; Pereira, W. W.; Fonseca, E. S.; Nogueira, T. M, *Calibração de Monitores de Nêutrons: Uma Análise dos Últimos dez Anos e Perspectivas Futuras*. In: VII ENAN – National Meeting on Nuclear Applications.

The following papers will be presented at VII ENAN – National Meeting on Nuclear Applications August 28 to September 02, 2005, Santos– SP - Brazil

3) ROBERTO M. DE L. JUNIOR, ADEMIR X. DA SILVA, WALSAN W. PEREIRA, EDMILSON M. DE SOUZA, *Determinação de uma matriz resposta para o espectrômetro de multiesferas de bonner* In: VII ENAN – National Meeting on Nuclear Applications. The following papers will be presented at VII ENAN – National Meeting on Nuclear Applications August 28 to September 02, 2005, Santos– SP - Brazil

4) PEREIRA, W. W. ; FONSECA, E. S. ; LEMOS JUNIOR, R. M. . *Medições de Espectros de Referência de Nêutrons Com o Espectrômetro de Multiesferas de Bonner*. In: Metrologia 2003, Recife. Metrologia 2003.

5) PEREIRA, W. W.; SILVA, A. X. ; FONSECA, E. S. ; CRISPIM, V. R. ; Vitorelli, J. C. *Monte Carlo simulation of response function for a NaI(Tl) detector for gamma rays from <sup>241</sup>Am/Be source*. *Applied Radiation and Isotopes*, v. 62, p. 619-622, 2004.

6) ROBERTO MENDONÇA DE LEMOS JÚNIOR. *Medidas de Espectros de Referência de Nêutrons com o Espectrômetro de Multiesferas de Bonner*. 2003. Dissertação (Mestrado em RADIOPROTEÇÃO E DOSIMETRIA) - Comissão Nacional de Energia Nuclear, Conselho Nacional de Desenvolvimento Científico e Tecnológico. *ORIENTADOR*: WALSAN WAGNER PEREIRA.