



CCRI(III)/11-10

## Report from LN/LNMRI/IRD

### Facility Updates

After the last neutron meeting, the low scattering neutron facilities received several new projects to change the source-monitor positioning system. One new project was approved and now the funds have been released to build it. We are now computing experimental and simulation data in order to revalidate model parameters.

### Meeting with SIM Members

The last meeting from SIM members was in November 2009 in our institute. In this year, a neutron workshop also took place in Petrópolis city near Rio de Janeiro, where researchers from NIST and LNMRI conducted a course about neutron metrology.

### Quality System

Two annual internal audits have been made since 2009. Peer review audit has decided to extend our system validation.

### Staff Members

Nowadays, neutron laboratory in Brazil works with 3 researchers and is now expecting to receive one new technical member.

### Routine activities

Survey meter calibration continues to increase in our lab and this demand is attributed mainly to oil exploration around Brazilian coast.

It was built a system to irradiate small liquid sample portions from manganese bath to obtain the efficiency parameter from the system as an alternative way to reactor. The proposed system is described in the work from LEITE, 2010, listed below (and as a CCRI(III)/11-11).

Neutron spectra and doses inside radiotherapy rooms are under study (SALGADO, 2010).

A national comparison is being prepared in order to evaluate results from labs that offer work services on individual monitoring with the personal dose quantity.



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## List of publications

Works published since 2009

1. Leite, Sandro Passos, PEREIRA, W. W., da Silva, Ademir Xavier, da Fonseca, Evaldo Simões, de Souza Patrão, Karla Cristina  
ALTERNATIVE IRRADIATION SYSTEM FOR EFFICIENCY MANGANESE BATH DETERMINATION. RADIATION MEASUREMENTS. , v.45, p.1499 - 1501, 2010.
2. Salgado, A.P., Pereira, W.W., da Fonseca, E.S., Patrão, K.C.S., Batista, D.V.S.  
CALIBRATION AND EVALUATION OF NEUTRON SURVEY METERS USED AT LINAC FACILITY. RADIATION MEASUREMENTS. , v.45, p.1502 - 1504, 2010.
3. Bittencourt, Guilherme Rodrigues, Cristina de Souza Patrão, Karla, Leite, Sandro Passos, Pereira, Walsan Wagner, Simões da Fonseca, Evaldo  
DETERMINATION OF SEMI-EMPIRICAL RELATIONSHIP BETWEEN THE MANGANESE AND HYDROGEN ATOMS RATIO, PHYSICAL DENSITY AND CONCENTRATION IN AN AQUEOUS SOLUTION OF MANGANESE SULPHATE. RADIATION MEASUREMENTS. , V.45, P.1505 - 1508, 2010.
4. Martins, M.M., Maurício, C.L.P., da Fonseca, Evaldo Simões, da Silva, A.X.  
BRAZILIAN TWO-COMPONENT TLD ALBEDO NEUTRON INDIVIDUAL MONITORING SYSTEM. RADIATION MEASUREMENTS. , v.45, p.1509 - 1512, 2010.
5. Federico, C.A., Gonzalez, O.L., Fonseca, E.S., Martin, I.M., Caldas, L.V.E.  
NEUTRON SPECTRA MEASUREMENTS IN THE SOUTH ATLANTIC ANOMALY REGION. RADIATION MEASUREMENTS. , v.45, p.1526 - 1528, 2010.

### V CONGRESSO BRASILEIRO DE METROLOGIA

Metrologia para a competitividade em áreas estratégicas  
9 a 13 de novembro de 2009. Salvador, Bahia – Brasil.

### CALIBRAÇÃO DE MONITORES DE ÁREA PARA NÊUTRONS USADOS EM ACELERADORES LINEARES CLÍNICOS

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### DETERMINAÇÃO DA RELAÇÃO SEMI-EMPÍRICA ENTRE A DENSIDADE FÍSICA, A CONCENTRAÇÃO E A RAZÃO ENTRE ÁTOMOS DE HIDROGÊNIO E MANGANÊS EM UMA SOLUÇÃO DE SULFATO DE MANGANÊS

Guilherme Rodrigues Bittencourt, Leonardo Curvello de Castro, Walsan W. Pereira, Karla C. de Souza Patrão, Evaldo S. da Fonseca, Sandro Passos Leite e Maria Letícia Dantas.



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DETERMINAÇÃO DE IMPUREZAS NO BANHO DE SULFATO DE MANGANÊS DO  
LN/LNMRI/IRD/BRASIL

Leonardo Curvello de Castro, Walsan W. Pereira , Maria Luiza Duarte Pinto  
Godoy, Karla C. de Souza Patrão, Evaldo S. da Fonseca, Sandro Passos  
Leite e Guilherme Rodrigues Bittencourt.

CONSTRUÇÃO DE UM SISTEMA ALTERNATIVO PARA A DETERMINAÇÃO DA  
SENSIBILIDADE DO SISTEMA PADRONIZAÇÃO PRIMÁRIA DE FONTES  
RADIOISOTÓPICAS DE NÊUTRONS

Sandro Passos Leite, Walsan W. Pereira , Ademir Xavier da Silva, Evaldo  
S. da Fonseca, Karla C. de Souza Patrão, Leonardo Curvello de Castro, Guilherme Rodrigues  
Bittencourt

CALIBRAÇÃO DE MONITORES DE ÁREA PARA NÊUTRONS USADOS EM  
ACELERADORES LINEARES CLÍNICOS

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**Accepted for publication in 2011**

Journal: Radiation Measurements (<http://www.elsevier.com/locate/radmeas>)

Manuscript Number: RADMEAS-D-09-00025R1

Martins, M.M., Maurício, C.L.P., Pereira, W.W., Silva, A.X.

Manuscript Title: CHARACTERIZATION OF A TWO-COMPONENT THERMOLUMINESCENT  
ALBEDO DOSEMETER ACCORDING TO ISO 21909

Article Type: Technical Report