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L-SHELL X-RAY PRODUCTION CROSS SECTIONS IN A RARE EARTH ELEMENT INDUCED BY Cl AND C IONS.

The utilization of different heavy ion beam analytical techniques such as heavy Particle Induced X-ray Emission, heavy ion Elastic Recoil Detection Analysis (ERDA), etc. is dependent on availability of accurate and reliable heavy ion-matter interaction database. Adding new experimental data of heavy ion induced X-ray production cross sections in elemental films to expand the existing global database of basic ion-atom interaction is of great importance.

In this work, L-shell X-ray production cross sections in bismuth induced by 7-35 MeV 35Clq+ and 4-12 MeV 12Cq+ ions have been measured. Multiple ionization effect on the ions is discussed. Experimental results are compared with ECPSSR, ECPSSR+EC and ECPSSR-UA theoretical predictions. There is fair agreement between the data, ECPSSR+EC and ECPSSR models for 12Cq+ ions while the ECPSSR+UA calculations overestimate experiment data. ECPSSR+EC calculations show good agreement with experiment for 35Clq+ ions while the ECPSSR prediction underestimates the experimental results.

Apply to be considered for a student ; award (Yes / No)?

Yes

Level for award;(Hons, MSc, PhD, N/A)?

MSc

Primary author: Mr EJEH, Ernest (University of Pretoria)

Co-authors: Prof. HLATSHWAYO, Thulani (University of Pretoria); Dr MADHUKU, Morgan (iThemba LABS TAMS, National Research Foundation,Johannesburg, South Africa); Mr LEGODI, Matshisa (University of Pretoria, South Africa); Prof. MSIMANGA, Mandla (Tshwane University of Technology)

Presenters: Mr EJEH, Ernest (University of Pretoria); Prof. HLATSHWAYO, Thulani (University of Pretoria)

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