



Contribution ID: 98

Type: Oral Presentation

Investigation of the radiative strength function in ^{74}Ge

Tuesday, 9 July 2013 14:10 (20 minutes)

Abstract content (Max 300 words)

The Radiative Strength Function (RSF) represents the ability of nuclear matter to absorb and emit photons. It is one of the input parameters, along with the nuclear level density, for the calculations of nuclear cross sections and reaction rates relevant to astrophysical processes which are invoked to explain the origin of elements heavier than iron [1]. In this work we investigate the dependence of the RSF on the spin and parity of the final state and on the different reactions to excite quasi-continuum states, which are found in the region of high-level density below the particle threshold. This provides not only information about the validity of the Brink hypothesis [2] but will also help to better understand reactions in astrophysical environments. In this effect, an international collaborative effort is made to study the gamma decay of the quasi-continuum states of ^{74}Ge using different reactions at different experimental facilities in the USA, Europe and South Africa.

In this talk I will give an overview of the collaborative experiments and will report on the preliminary results.

- This work is based on research supported by the National Research Foundation of South Africa and on work performed under the auspices of the U.S. Department of Energy Lawrence Livermore National Laboratory under contract DE-AC52-07NA27344

[1] A.C. Larsen and S. Goriely, Phys. Rev. C 82,014318 (2010).

[2] D.M. Brink, PhD Thesis, Oxford University (1955).

[3] M.Wiedeking et. al., Phys. Rev. Lett. 108, 162503 (2012).

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

No

Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

yes

Primary author: Dr NEGI, DINESH (iThemba LABS)

Co-authors: Dr GORGEN, A. (University of Oslo); Dr LARSEN, A.C. (University of Oslo, Oslo, Norway); Mr KHESWA, B.V. (iThemba LABS); Dr ROUX, D.G. (RU); Dr SCHNEIDER, D.H.G. (Lawrence Livermore National Laboratory); Dr BLEUEL, D.L. (Lawrence Livermore National Laboratory); Dr LAWRIE, E.L. (iThemba LABS); Mr NDAYISHIMYE, J. (SU); Dr LAWRIE, J.J. (iThemba LABS); Mr EASTON, J.L. (UWC); Dr ORCE, J.N. (UWC); Dr

BERNSTIEN, L.A. (Lawrence Livermore National Laboratory); Dr MASITENG, L.P. (UJ); Prof. GUTTORMSEN, M. (University of Oslo); Dr WIEDEKING, M. (iThemba LABS); Mr STANKIEWICZ, M.A. (UCT); Dr NCHODU, M.R. (iThemba LABS); Mr ERASMUS, N. (UWC); Ms KHUMALO, N. (UWC); Dr SHIRINDA, O. (iThemba LABS); Dr PAPKA, P. (SU); Mr UWITZONE, P.C. (RU); Dr JONES, P.L. (iThemba LABS); Mr SITHOLE, P.S. (UWC); Dr BARK, R.A. (iThemba LABS); Dr NEWMAN, R.T. (SU); Ms BVUMBI, S. (UJ); Dr SIEM, S. (University of Oslo); Mr MAJOLA, S.N.T. (UCT); Mr NONCOLELA, S.P. (UWC); Ms RENSTROM, T. (University of Oslo); Dr SINGO-BUCHER, T.D. (iThemba LABS); Mr DINOKO, T.S. (UWC)

Presenter: Dr NEGI, DINESH (iThemba LABS)

Session Classification: NPRP

Track Classification: Track B - Nuclear, Particle and Radiation Physics