Contribution ID: **115** Type: **Oral**

Absolute measurement of the 7Be(p,g)8B cross section with the recoil separator ERNA

Monday, 19 June 2017 18:30 (20 minutes)

7Be(p,g)8B still represents one of the major uncertainties on the predicted high energy component of solar neutrino flux and it has also a direct impact on the 7Li abundance after the Big Bang Nucleosynthesis. Previous experiments producing data with useful precision were performed in direct kinematics, using an intense proton beam on a radioactive 7Be target. The complicated target stoichiometry and the deterioration under beam bombardment might possibly be the origin of the discrepancies observed between the results of different measurements. Inverse kinematics, i.e. a 7Be ion beam and a hydrogen target, would shed light on systematic effects. Unfortunately, efforts attempted so far were limited by the low 7Be beam intensity. We present here a new experiment, exploiting a high intensity 7Be beam in combination with a windowless gas target and the recoil mass separator ERNA (European Recoil mass separator for Nuclear Astrophysics) at CIRCE (Center for Isotopic Research on Cultural and Environmental heritage), Caserta, Italy. Aim of the experiment is the measurement of the total reaction cross section by means of the direct detection of the 8B recoils. The experimental setup as well as results and their astrophysical impact will be illustrated.

Primary author: BUOMPANE, Raffaele (NA)

Co-authors: DI LEVA, Antonino (NA); D'ONOFRIO, Antonio (NA); RAPAGNANI, David (PG); ROGALLA, Detlef (RUBION, Ruhr-Universitat Bochum, Bochum, Germany); MARZAIOLI, Fabio (Dipartimento di Matematica e Fisica,Universita degli Studi della Campania Luigi Vanvitelli, Caserta, Italia); TERRASI, Filippo (NA); PALUMBO, Giancarlo (Dipartimento di Economia, Management Istituzioni Laboratorio Chimico-Merceologico Università degli Studi di Napoli Federico II, Napoli, Italia); PORZIO, Giuseppe (AC); GYÜRKY, György (Institute for Nuclear Research (MTA ATOMKI), Debrecen, Hungary); GARCIA DUARTE, Jeremias (NA); ROMERO GASQUES, Leandro (N); Ms MORALES GALLEGOS, Lizeth (INFN PhD Student); GIALANELLA, Lucio (NA); DE CESARE, Mario (NA); ROMOLI, Mauro (NA); ROCA, Vincenzo (NA); FÜLÖP, Zsolt (Institute for Nuclear Research (MTA ATOMKI), Debrecen, Hungary)

Presenter: BUOMPANE, Raffaele (NA)

Session Classification: Direct measurements 1