Contribution ID: **27** Type: **not specified**

Electrodisintegration of 16O and determination of astrophysical S-factors of the inverse reaction

Friday, 27 May 2022 11:45 (30 minutes)

After more than five decades of experimental effort the rate of on 12C radiative capture at astrophysical energies (~ 0.3 MeV above threshold) is not determined with desired precision and it is a cause of the largest uncertainty contribution in modeling of evolution of massive stars and underlying nucleosynthesis. By using the windowless gas jet target and modern energy-recovery linear accelerators (ERLs, CBETA at Cornell, NY, USA and MESA in Mainz, Germany) to reach high luminosity, a high precision measurement of the electron scattering on 16O nucleus would provide a method to determine the rate of the on 12C radiative capture for energy range < 2 MeV with a superb precision compared to previous experiments [1]. The feasibility of this method still needs to be studied. This could be done in a moderate luminosity experiment at existing electron accelerator sites by measuring the rate at > 2 MeV where the cross section is much larger.

[1] I. Friščić, T. W. Donnelly, and R. G. Milner, Phys. Rev. C 100, (2019) 025804

Currently supported by:
Croatian Science Foundation under the project IP-2018-01-8570 and European Union's Horizon 2020 research and innovation program under the grant agreement 101038099.

Attendance

Contact Email

Scheduling Constraints

Primary author: FRIŠČIĆ, Ivica (University of Zagreb, PMF-FO)

Presenter: FRIŠČIĆ, Ivica (University of Zagreb, PMF-FO)