

First results with India's Nuclear Astrophysics Accelerator: FRENA

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Abstract: FRENA is the country's first experimental nuclear astrophysics centre, with a 3 MV Tandetron at its heart. The accelerator is capable of delivering high current beams of low-energy ions. This is ideally suitable for performing studies which will help us in obtaining a better understanding about the origin of our universe. FRENA has been designed in a way, such that various stellar scenarios can be reproduced. Nuclear reaction cross-sections relevant to astrophysical sites can be precisely measured by means of gamma spectroscopy techniques or by detecting neutrons. Recently, a series of experiments have been performed at FRENA which has enabled the calibration of the accelerator terminal voltage. This talk will discuss the FRENA design, recent results as well as the future scope where the national pool of experimentalists can contribute in a critical way.
