Virtual Joint Nuclear and Astrophysics Seminar

- When: Friday February 26th at 12:00 PM CST
- Where: ZOOM link: https://tamu.zoom.us/j/93502613243
- Speakers: Ninel Nica and Jasleen Matharu

Texas A&M US Nuclear DATA Program
By Ninel Nica

As part of the US Nuclear DATA Program Cyclotron Institute started to contribute as early as 2005 to the Evaluated Nuclear Structure Data File (ENSDF), the most comprehensive collection of nuclear structure data worldwide maintained by the National Nuclear Data Center at Brookhaven National Lab. Debuting about one hundred years ago nuclear data evaluation accompanied the development of the nuclear physics science making periodic surveys of the world literature in order to recommend the best nuclear data parameters to be used in all sorts of basic and applied sciences. The effort refocused and extended after WWII and, while it became more international in the last decades, it continued to be mainly sustained by the US for the benefit of all the world. Since 2018 Texas A&M by its Cyclotron Institute has become a standalone evaluation center in a consortium of peers hosted traditionally by prestigious national institutes and being one of the principal contributors to the evaluation effort nationwide. Our challenges are to maintain a good productivity for the currency of the data and participate in the effort of modernizing the structure of ENSDF databases in order to make them compatible with the "data-centric" paradigms of the future.

Tracing star formation in galaxies using spatially resolved H-Alpha emission line maps
By Jasleen Matharu

Spectral features seen in galaxy spectra due to ionized hydrogen around very young, hot stars have been used as indicators for star formation in galaxies. When combined with spatial information across the galaxy, H-Alpha emission line maps are able to help astrophysicists answer the questions "How do galaxies form stars?" and "How do galaxies stop forming stars?". I will describe the astrophysics behind this powerful spectral feature and how it is being used to spatially map star formation in galaxies outside the local Universe for the first time. I will present two new results revealing how star formation and the shut down of star formation is proceeding in different galaxy environments over a large portion of the Universe's history.