

ICTS Astrophysical Relativity Seminar

Title : Dynamical stability of triple-star systems

Speaker : Pavan Vynatheya (Max Planck Institute for Astrophysics, Garching, Germany)

Date : Thursday, 17th November 2022

Time : 03:00 pm (IST)

Abstract : We present two approaches to determine the dynamical stability of a hierarchical triple-star system. The first is an improvement on the Mardling-Aarseth stability formula from 2001, where we introduce a dependence on inner orbital eccentricity and improve the dependence on mutual orbital inclination. The second involves a machine learning approach, where we use a multilayer perceptron (MLP) to classify triple-star systems as 'stable' and 'unstable'. To achieve this, we generate a large training data set of 10^6 hierarchical triples using the N-body code MSTAR. Both our approaches perform better than previous stability criteria, with the MLP model performing the best.

Venue : **Hybrid Mode**

Offline: Feynman Lecture Hall

Online: Please click on the link to join the seminar

<https://icts-res-in.zoom.us/j/88526801649?pwd=SkdFZlVoVTErbGVoa1lNY25ZdVp1dz09>

Meeting ID: 885 2680 1649

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