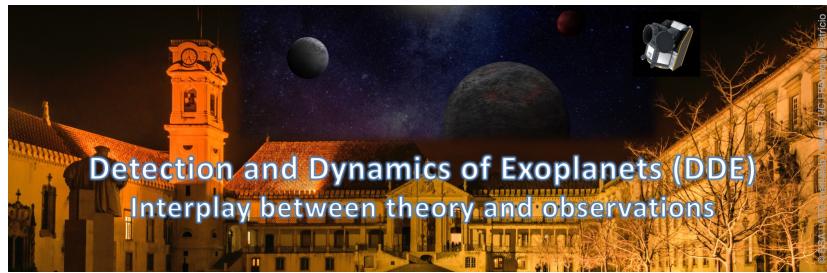


Detection and Dynamics of Exoplanets (DDE): Interplay between theory and observations



Contribution ID: 106

Type: **not specified**

Heating of planetesimals from ^{26}Al and ^{60}Fe

Thursday, July 10, 2025 4:45 PM (15 minutes)

The decay of short-lived radioisotopes (SLRs) is an important source of heating for early protoplanetary systems, and can affect planetesimal and subsequent planet formation through early thermal evolution, accelerated core-mantle differentiation and volatile outgassing. However, the mechanisms by which a stellar system becomes enriched with these SLRs to levels far above the galactic background level are poorly understood. In this talk, we will discuss the methodology and results of our recent N-body simulations of stellar clusters containing massive stars, supernovae and interloping AGB stars, which were performed to determine the efficacy of these enrichment mechanisms. We will also discuss concurrent simulations modelling the effect of SLR heating on the H₂O content of planetesimals, which were performed to better understand the effect of SLRs on nascent planetary systems.

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Session Classification: Star-planet interactions and exoplanets' characterization