Astronomy Seminar

Dr. Jesse Golden-Marx

University of Nottingham

A Euclid View of the Intracluster Light in the Perseus Cluster

Time: 10:00-11:00, 31 May (Friday), Shanghai time

Venue: N600（TDLI）

Host: Ying Zu

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Meeting ID: 290732720

Abstract:

I will present new state-of-the art observations of the Perseus Cluster taken as part of the Euclid Early Release Observations. This data allows us, for the first time, to characterize the intracluster light (ICL) and intracluster globular clusters (ICGCs) in Perseus out to 600 kpc from the BCG. We find that within 500kpc of the BCG, there are 70,000 globular clusters and that the ICL accounts for 37% of the total stellar luminosity within the cluster. Our measurements show that the ICL and ICGCs occupy a similar spatial distribution, which suggests they share a common origin or are governed by a common gravitational potential. Interestingly, we find that the distribution (at the largest scales) is not centred on the BCGs core, but rather offset by 60kpc westward, towards several luminous galaxies, which provides insight into the cluster's recent merger history. Additionally, the combination of the blue ICL colour gradient and ICGC statistics suggest that both components were tidally stripped from massive satellite galaxies with Mstar ~10^10 Msun. This work is the first of many low surface brightness results with Euclid, which will reshape our understanding of galaxy evolution and the connection to dark matter halos.

Biography:

Dr. Jesse Golden-Marx is currently a Senior Research Associate working with Prof. Nina Hatch and the NottICL group at the University of Nottingham. He received his Bachelor's degree in Physics from Brown University in 2013. He received a Ph.D. in Astronomy and Astrophysics from the University of Michigan, where he worked with Prof. Chris Miller. He then was a Postdoctoral Fellow at Shanghai Jiao Tong University from 2019-2023, where he worked with Prof. Ying Zu on topics related to the galaxy-halo connection and DESI. Jesse's research focuses primarily on all aspects of Brightest Central Galaxies including their formation and evolution, the surrounding intracluster light, and the connection between galaxies and the dark matter halos. He currently is working on project related to ICL using the Euclid space mission.