

Beyond Collisionless Cold Dark Matter: Observational Clues to Self-Interacting Dark Matter

Saturday 25 October 2025 17:30 (45 minutes)

Cold dark matter (CDM) has been remarkably successful in describing the large-scale universe, yet tensions persist on smaller scales—from dwarf galaxy cores to the excess of galaxy–galaxy strong lensing (GGSL) anomalies in clusters. These discrepancies point to limitations in the collisionless CDM paradigm. In this talk, I will focus on self-interacting dark matter (SIDM), and in particular a two-component model with mass segregation, which offers a unified explanation for both dwarf-scale cores and GGSL anomalies. These observational clues underscore the power of lensing and other astrophysical probes in revealing the microphysics of the dark sector.

Presenter: Dr 侯, 思媛 (紫金山天文台)

Session Classification: Session3 (每个报告：30 分钟个人报告 +15 分钟讨论)