



THE CHINESE UNIVERSITY OF HONG KONG
Department of Physics
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Radiative Turbulent Mixing Layers and AGN Feedback: Insights from High-Resolution Hydrodynamic Simulations

by

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Place: Rm G26, Science Centre North Block, CUHK

ALL INTERESTED ARE WELCOME

Abstract

Turbulent mixing layers (TMLs) and AGN feedback play critical roles in the evolution of galactic and circumgalactic gas. We present key findings from high-resolution hydrodynamic simulations of radiative TMLs across a range of Mach numbers, revealing a two-zone structure at high Mach numbers and distinct cooling and mixing processes. Additionally, we introduce MACER3D, a new suite of 3D AGN feedback simulations resolving gas dynamics from the Bondi scale to the halo. Our results highlight the intricate interplay between AGN and supernova feedback, their impact on star formation, and their role in metal enrichment and X-ray observables. These studies provide new insights into multi-scale gas dynamics in galaxy evolution.