

# From Alpha Clustering in light Nuclei to Astrophysically Relevant Nuclear Reactions

Thursday 9 May 2024 14:20 (20 minutes)

The investigation of alpha cluster structures within light nuclei is critically important, bridging the fields of nuclear physics and astrophysical nuclear reactions. Alpha particles, with their unique characteristics, play an important role in nuclear astrophysics. The Hoyle state stands as a key example, essential for explaining the cosmic abundance of  $^{12}\text{C}$ . Characterized by a distinct three-alpha structure, it is usually considered to be a Bose-Einstein Condensate (BEC) state, making the search for Hoyle-like states vital for understanding the formation and stability of light nuclei. The study of these cluster formations, pivotal in numerous astrophysically relevant nuclear reactions, highlights the significance of the microscopic cluster approach.

## Collaboration (if any)

**Primary author:** ZHOU, Bo (Fudan University)

**Presenter:** ZHOU, Bo (Fudan University)

**Session Classification:** 07 - 核天体物理

**Track Classification:** 07 - 核天体物理