

Probing the Initial Conditions of Massive Cluster Formation

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Infrared dark clouds (IRDCs) are extinction features against the Galactic infrared background light. Their extraordinarily large mass and column density make them the most promising sites to form massive clusters that delineate most of the visible universe. This project will aim at probing the initial conditions of massive cluster formation, such as kinematics, mass distribution, and chemical behaviors, in IRDC cores with emissions of warm dust and molecular gas so that a more realistic parameter space can be prepared for theoretical studies. The student shall expect to learn 1) general concepts related to massive star formation and cluster formation and 2) interferometric data reduction. A weekly discussion with the advisor through the summer program is required.