

ABSTRACT

TACHIHARA, Kengo

NAOJ, ALMA Project Office, Tokyo

Origin of the Interstellar Turbulence and Its Role in Star Formation

For molecular cloud evolution and star formation, supersonic interstellar turbulence is one of the key fundamental elements. Previous studies on dense core stability, it is shown that cores dominated by larger internal turbulent motion tend to be less active in star formation having longer timescale of contraction. However we still do not know yet what interstellar turbulence originates and how it is sustained long time. Koyama & Inutsuka proposed an idea that thermal instability on a compressed cloud layer generates turbulent motion and it fragments into small cloudlets. In order to verify this idea we made high-resolution ^{12}CO survey on a cloud boundary interacting with HII region by the Nobeyama 45m telescope. As a result, small-scale (< 10000 AU) cloud structures with complex velocity fields are detected. This result supports the theoretical thermal instability model.