

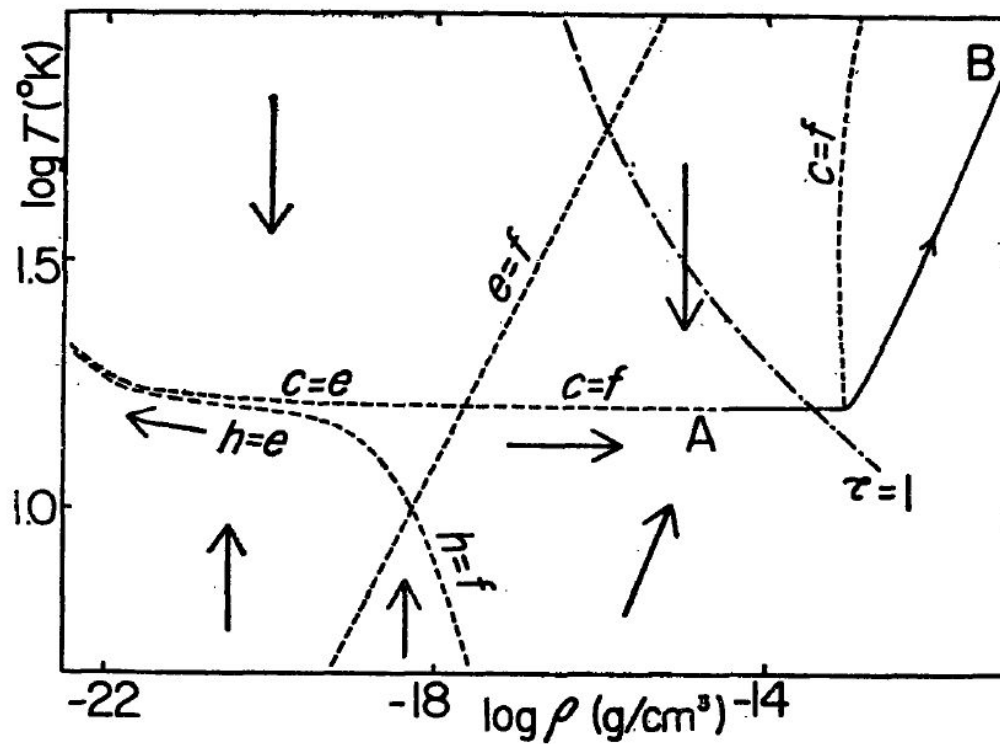
Hayashi and the Thermal Physics of Collapsing Clouds

Richard B. Larson
Yale University

Contraction of a Protostar up to the Stage of Quasi-Static Equilibrium

Chushiro HAYASHI and Takenori NAKANO

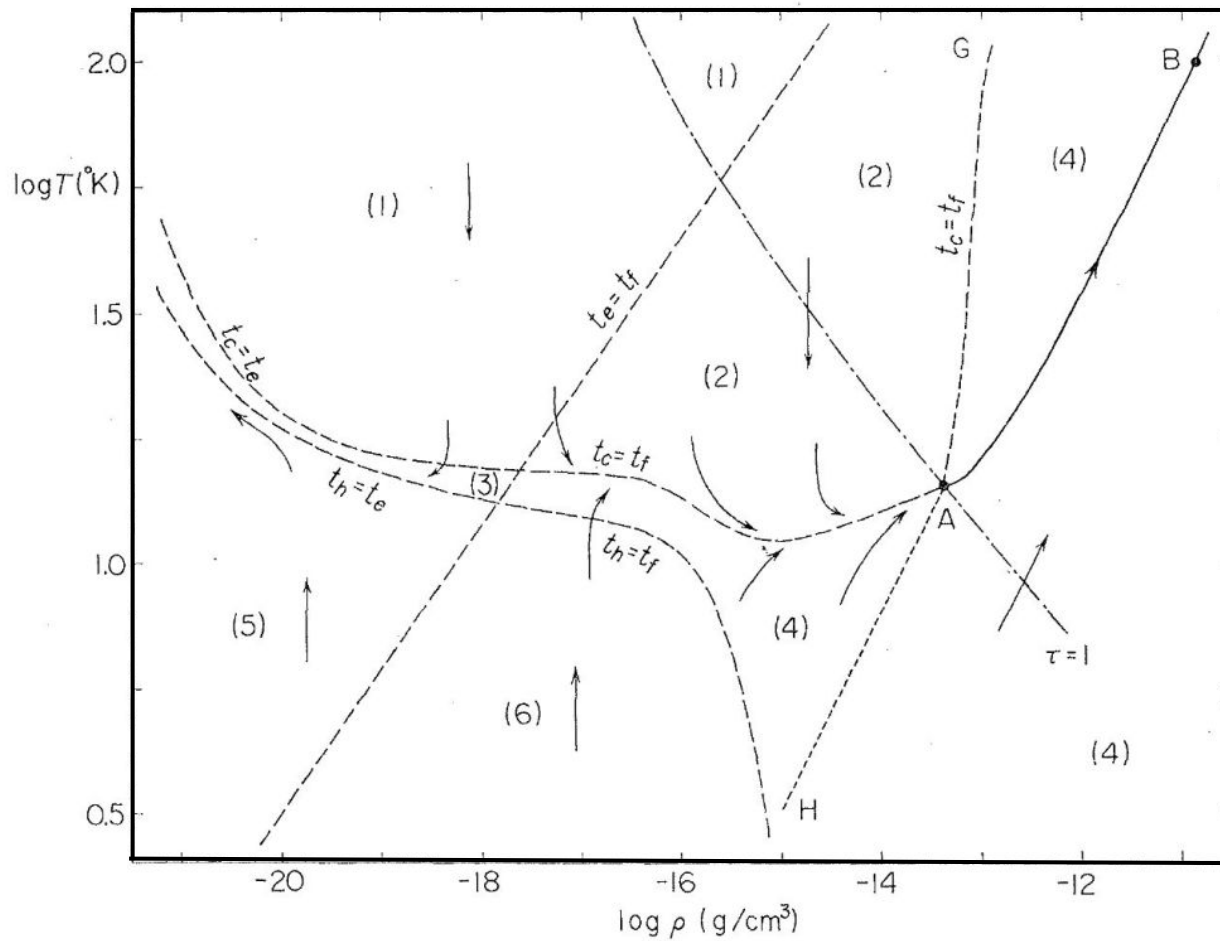
Progress of Theoretical Physics Letters 1965



Thermal and Dynamical Properties of a Protostar and Its Contraction to the Stage of Quasi-Static Equilibrium

Chushiro HAYASHI and Takenori NAKANO

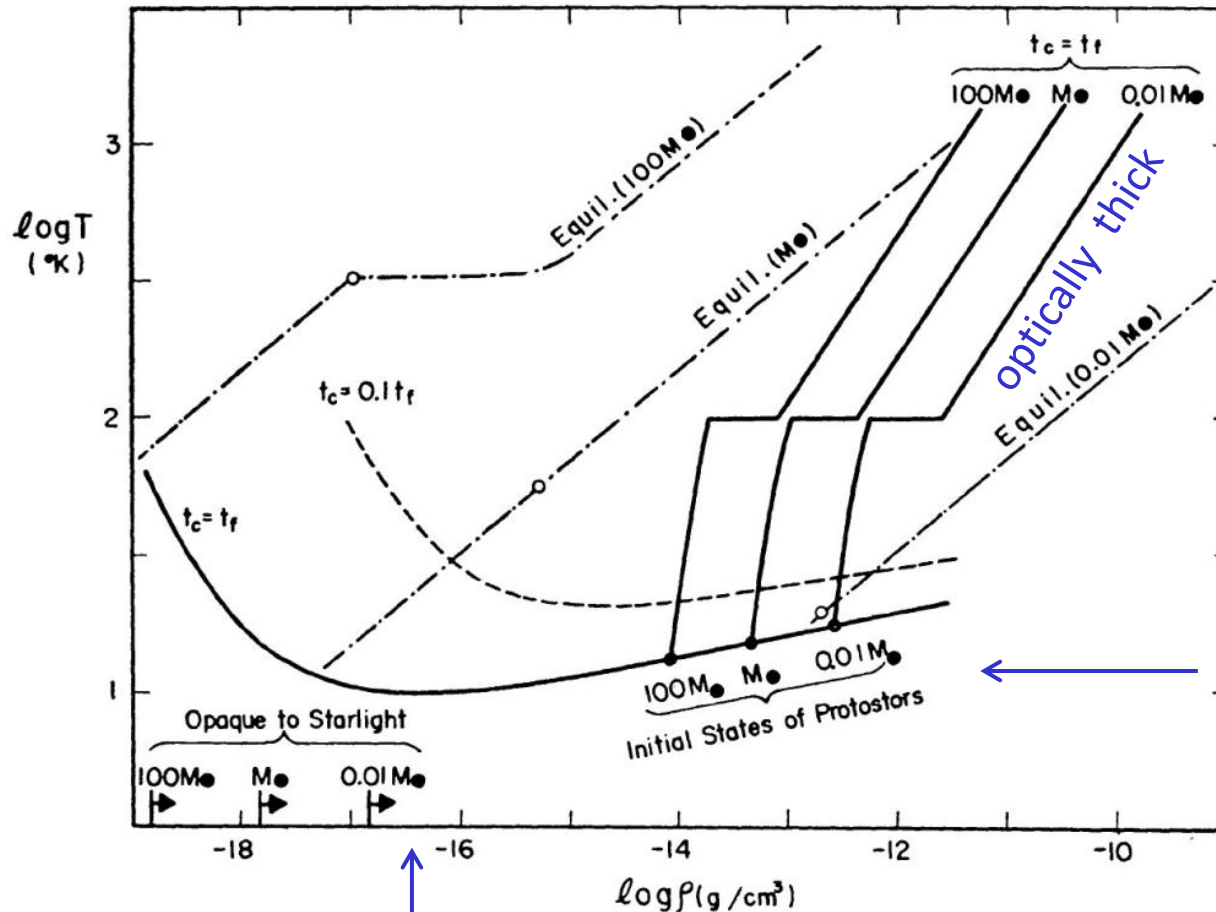
Progress of Theoretical Physics 1965



EVOLUTION OF PROTOSTARS¹

BY CHUSHIRO HAYASHI

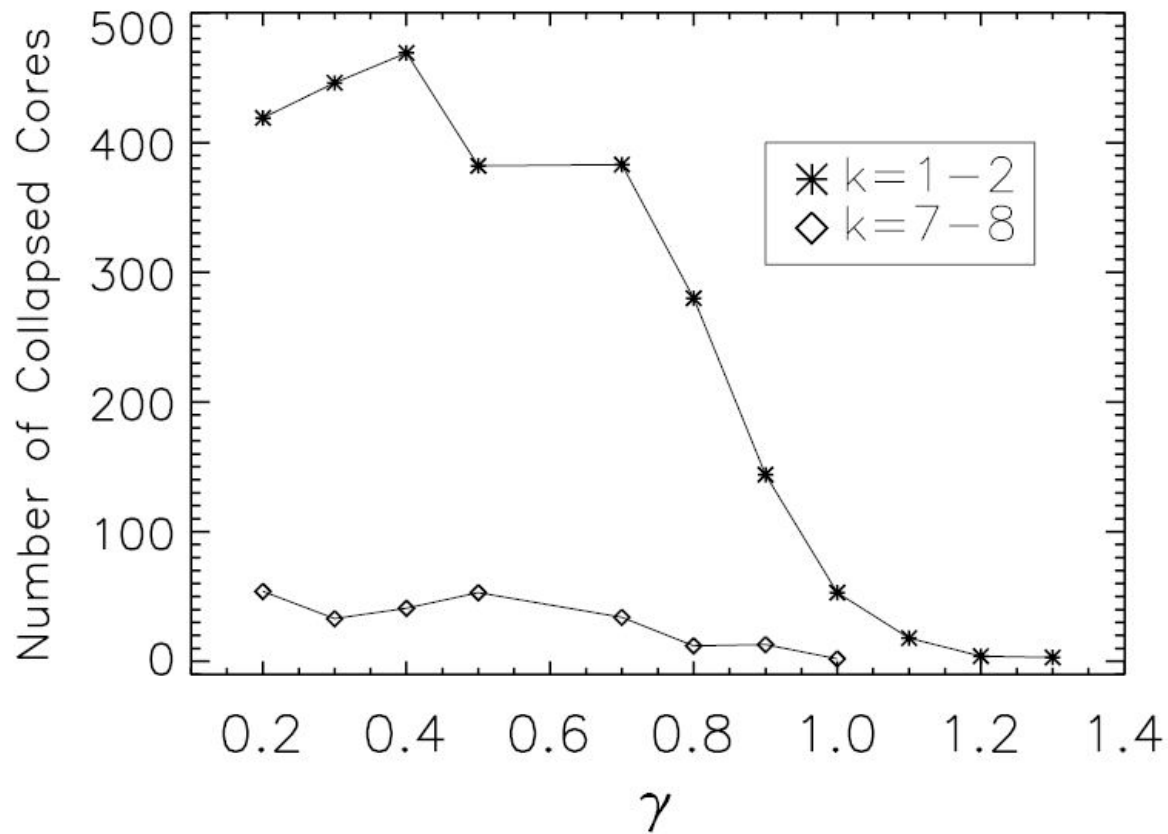
Annual Review of Astronomy and Astrophysics 1966



THE FORMATION OF STELLAR CLUSTERS IN TURBULENT MOLECULAR CLOUDS: EFFECTS OF THE EQUATION OF STATE

YUEXING LI,^{1,2} RALF S. KLESSEN,³ AND MORDECAI-MARK MAC LOW^{1,2}

Astrophysical Journal 2003

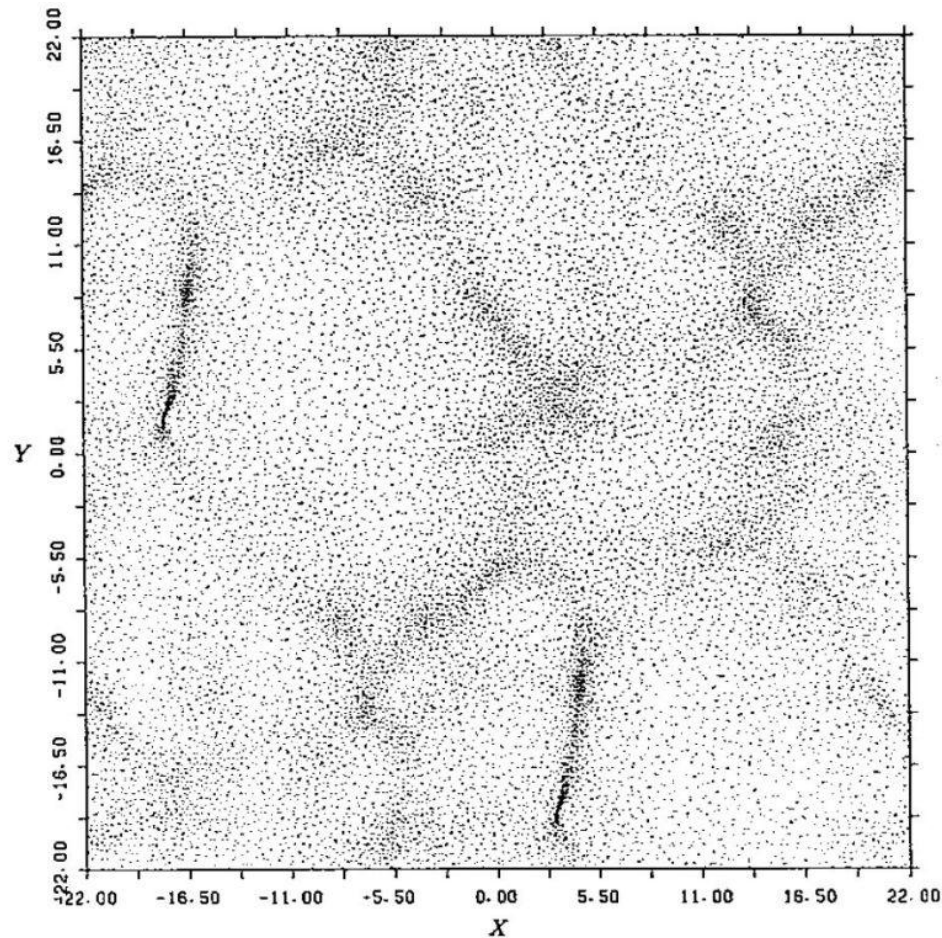


Fragmentation of Isothermal Sheet-Like Clouds. II

— *Full Nonlinear Numerical Simulations* —

Shoken M. MIYAMA, Shinji NARITA* and Chushiro HAYASHI**,*)

Progress of Theoretical Physics 1987

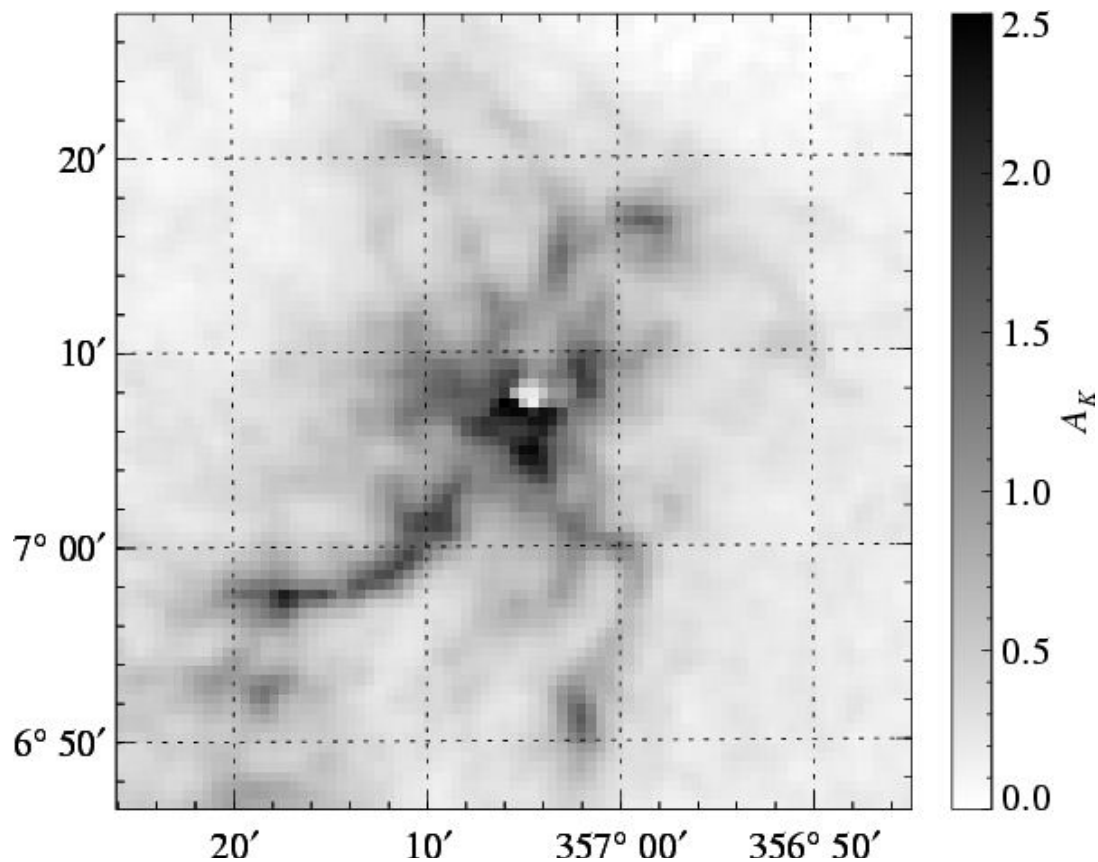


2MASS wide field extinction maps

I. The Pipe nebula

M. Lombardi^{1,2}, J. Alves¹, and C. J. Lada³

Astronomy and Astrophysics 2006



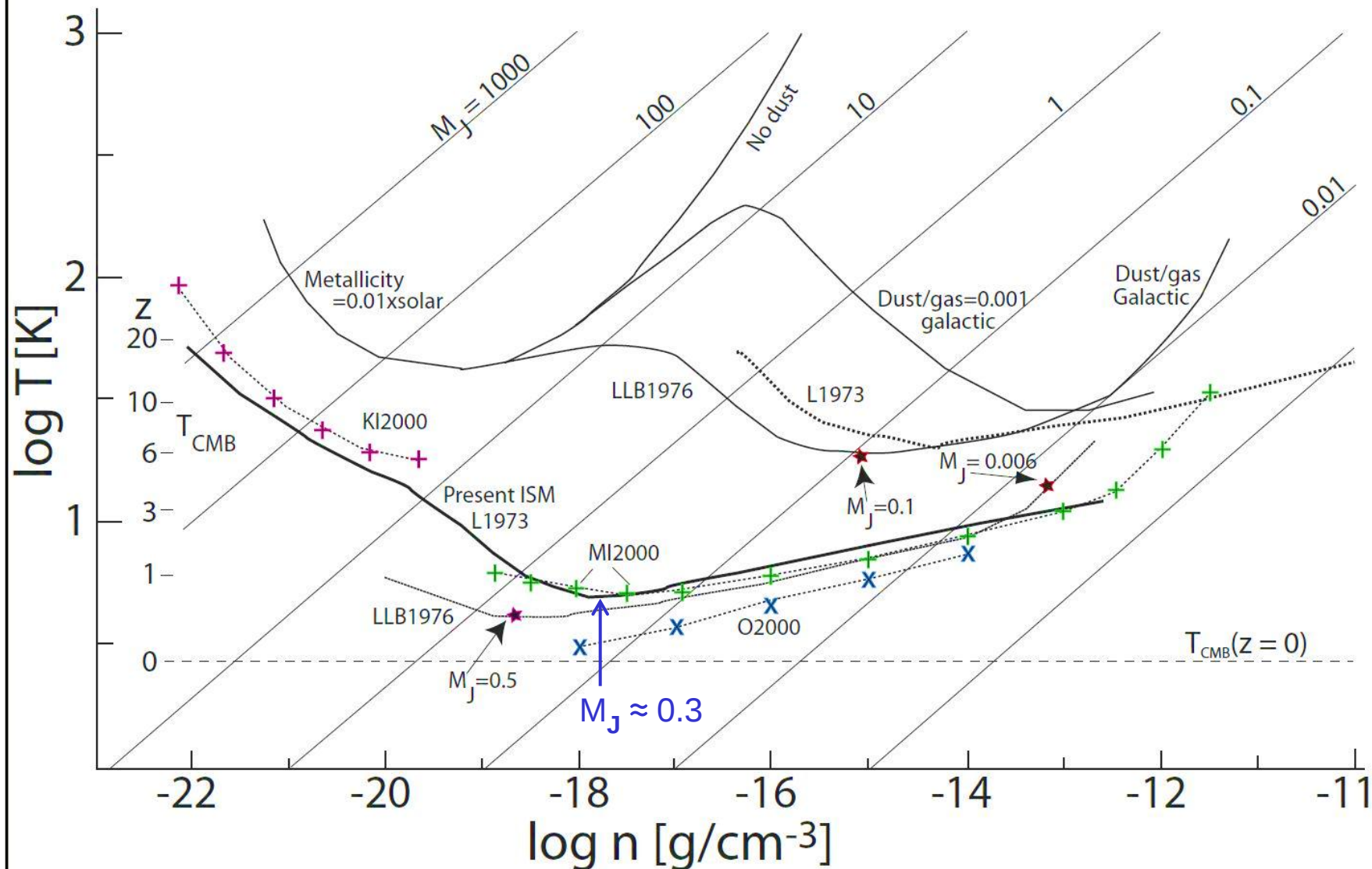


Fig 2 Summary of temperature-density evolution of idealized collapsing clouds from various authors: Larson (1973) [L1973], Low & Lynden-Bell (1976) [LLB1976], Koyama & Inutsuka (2000) [KI2000], Masunaga & Inutsuka (2000) [MI2000], and Omukai (2000) [O2000]. Diagonal lines are lines of constant Jeans mass in the temperature-density (T - n) plane. The “Present ISM” curves assume standard galactic dust/gas ratio, UV and cosmic ray backgrounds (e.g., see Wolfire & Cassinelli 2000).

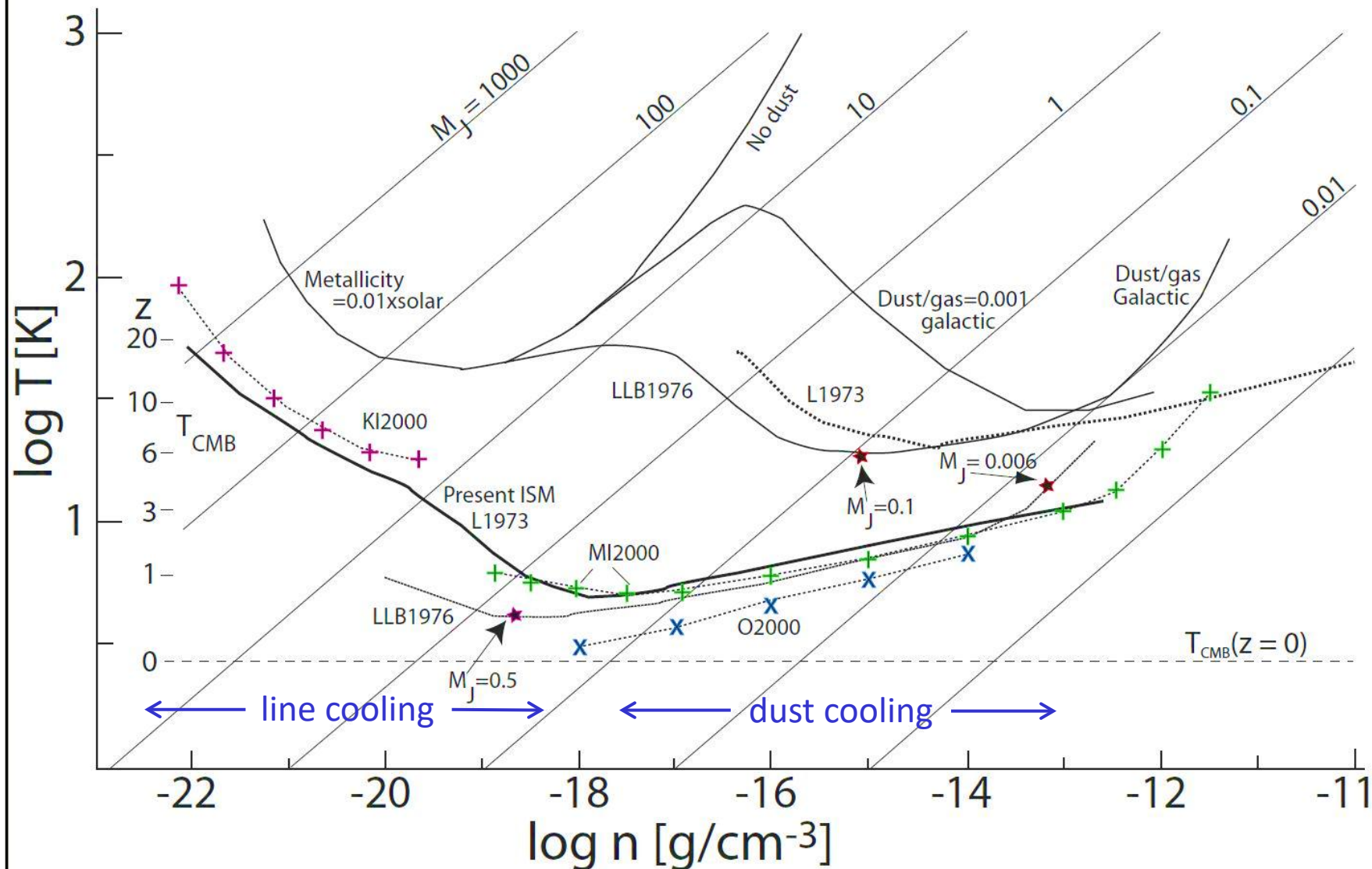


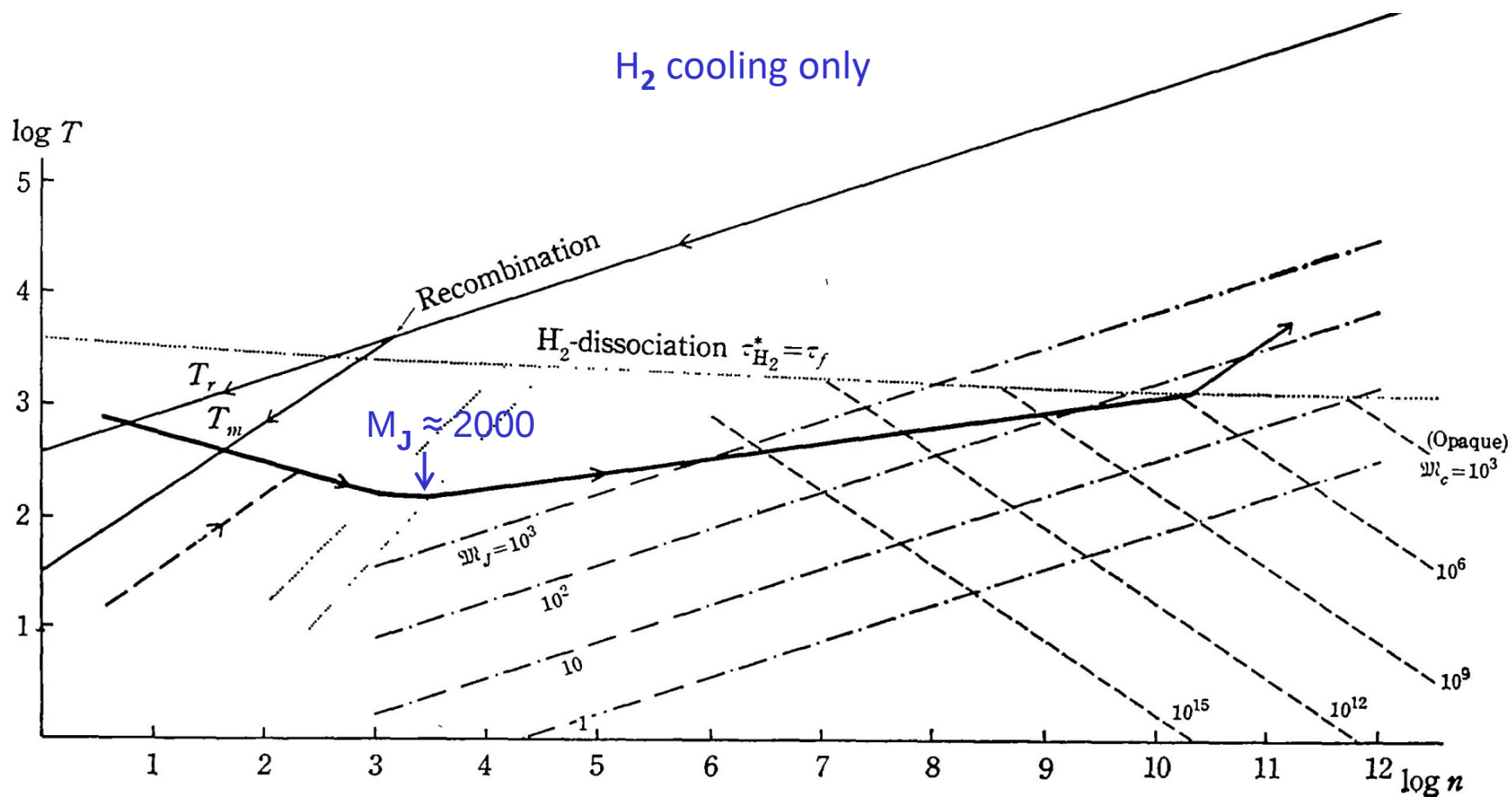
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On the Fragmentation of a Contracting Hydrogen Cloud in an Expanding Universe

Tadaaki YONEYAMA

Publications of the Astronomical Society of Japan 1972

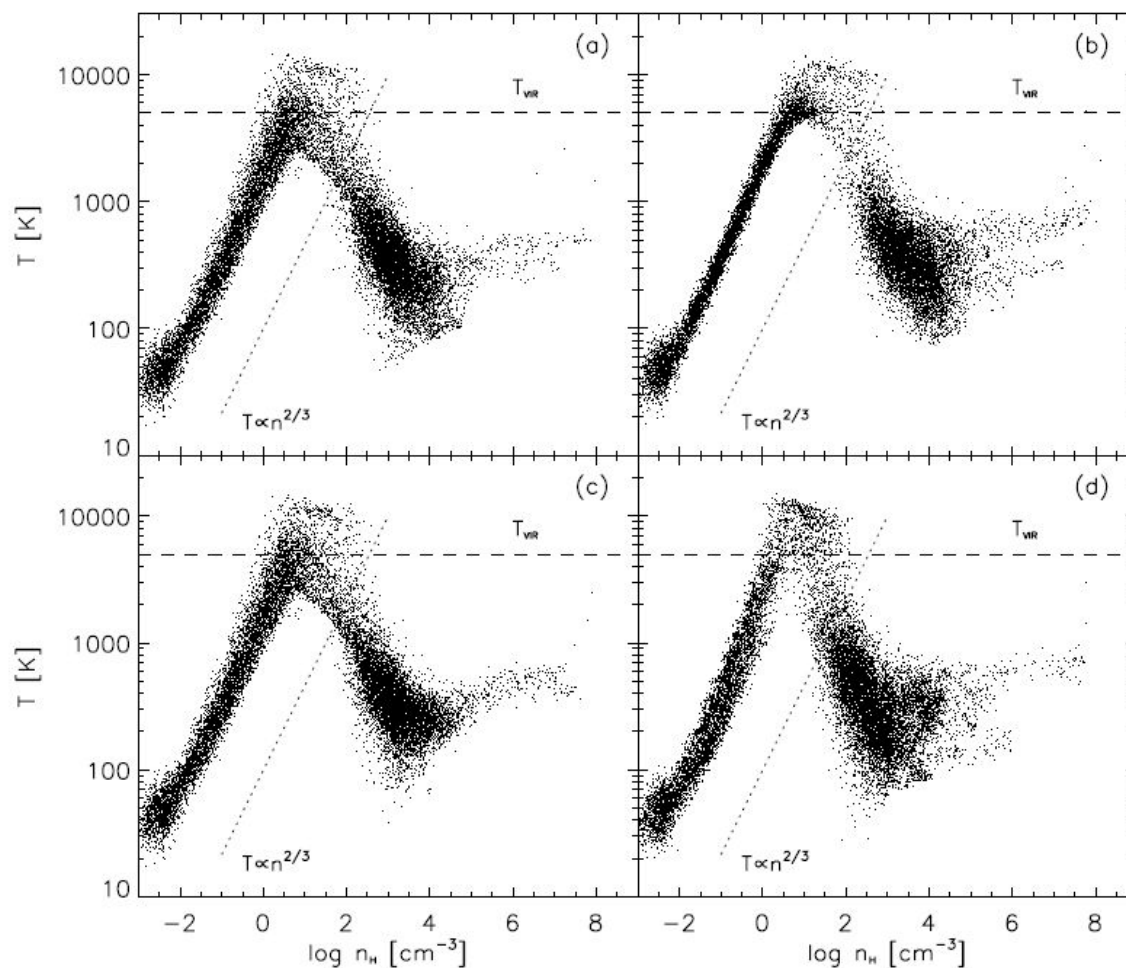
H_2 cooling only



THE FORMATION OF THE FIRST STARS. I. THE PRIMORDIAL STAR-FORMING CLOUD

VOLKER BROMM,¹ PAOLO S. COPPI, AND RICHARD B. LARSON

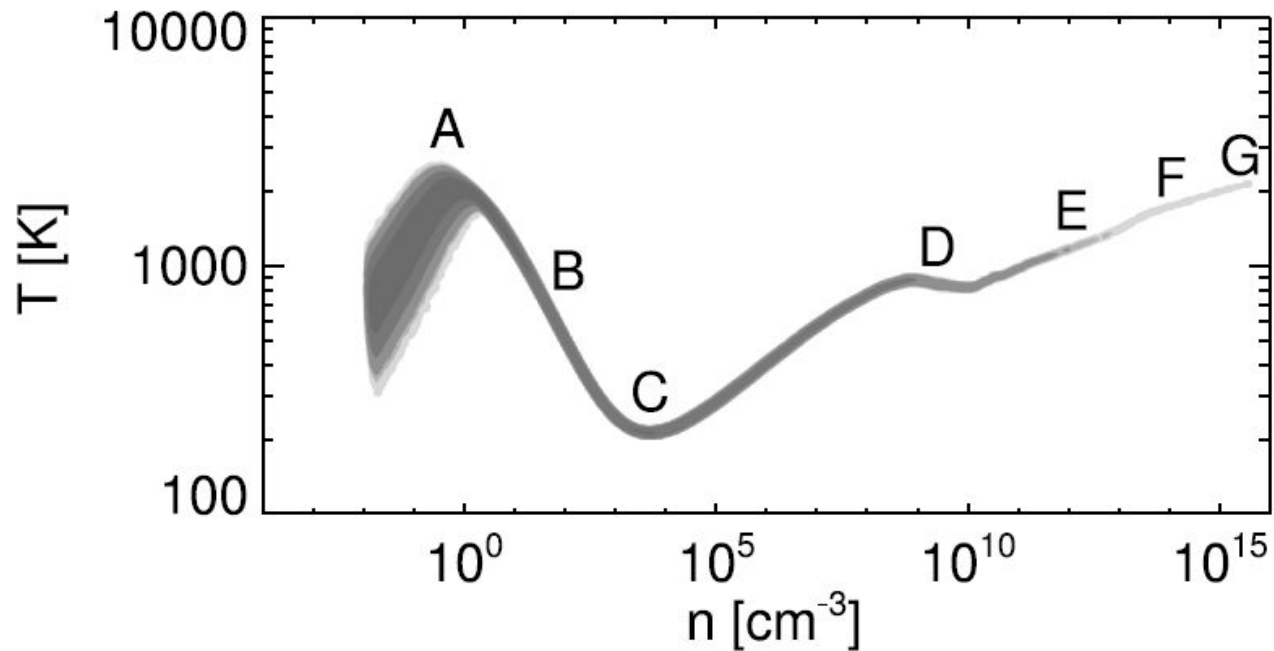
Astrophysical Journal 2002



FORMATION OF PRIMORDIAL STARS IN A Λ CDM UNIVERSE

NAOKI YOSHIDA KAZUYUKI OMUKAI LARS HERNQUIST TOM ABEL

Astrophysical Journal 2006

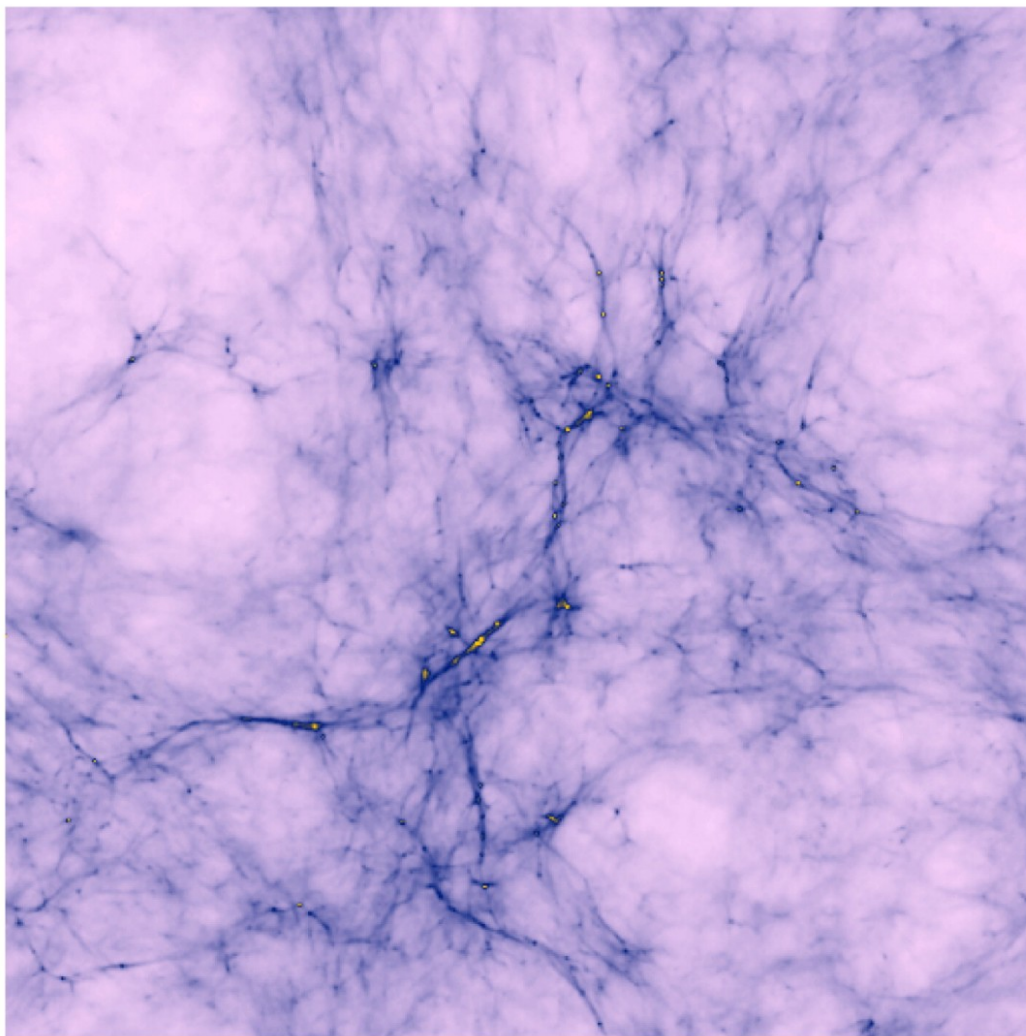


A- collapse; B- H₂ cooling; C- cooling saturates; D- gas fully molecular;
E- line opacity important; F- collisional emission; G- H₂ dissociates

SIMULATIONS OF EARLY STRUCTURE FORMATION: PRIMORDIAL GAS CLOUDS

NAOKI YOSHIDA TOM ABEL LARS HERNQUIST NAOSHI SUGIYAMA

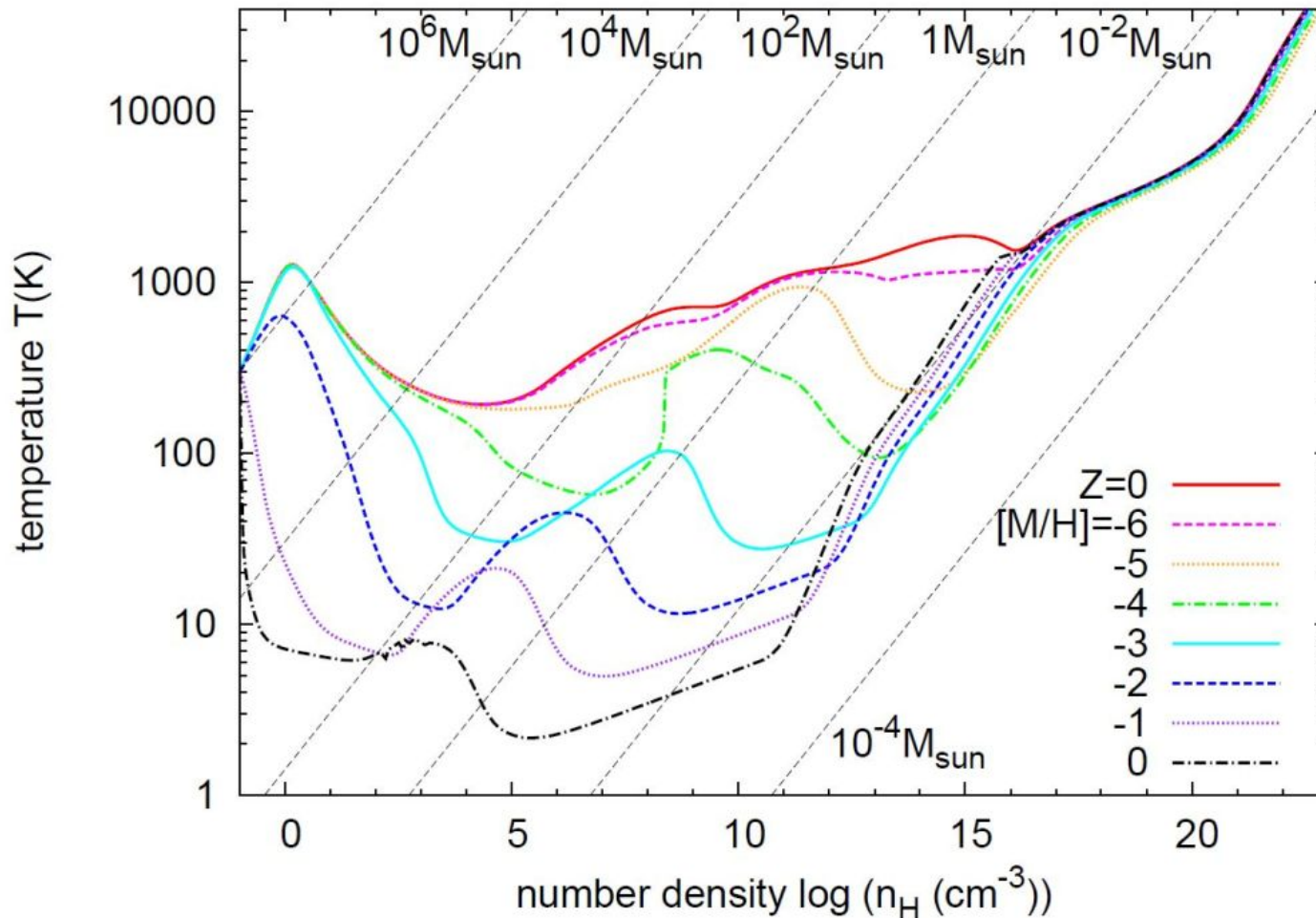
Astrophysical Journal 2003



LOW-METALLICITY STAR FORMATION: PRESTELLAR COLLAPSE AND PROTOSTELLAR ACCRETION IN THE SPHERICAL SYMMETRY

KAZUYUKI OMUKAI TAKASHI HOSOKAWA NAOKI YOSHIDA

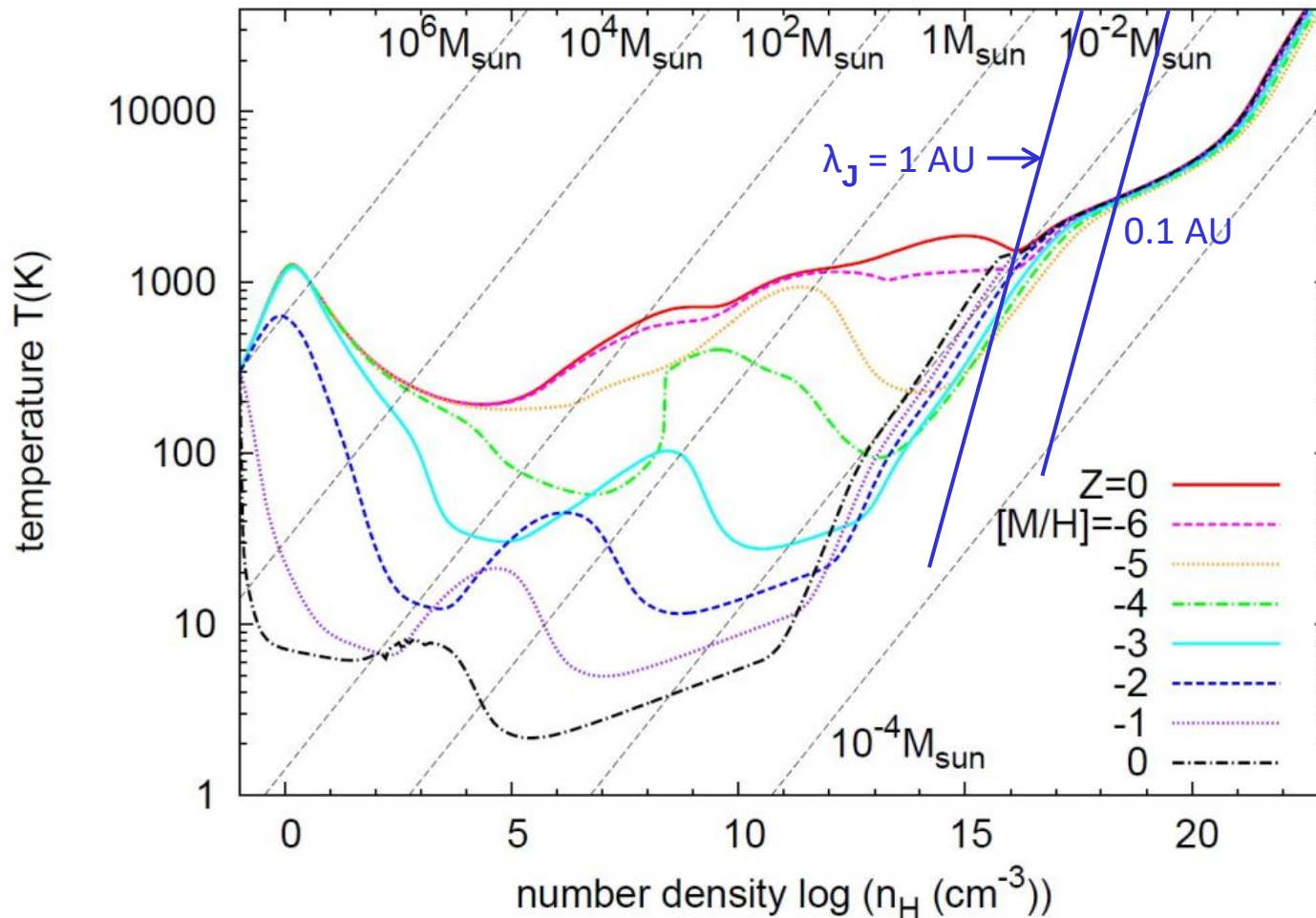
Astrophysical Journal 2010



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