Star formation news letter
280 26-30本目

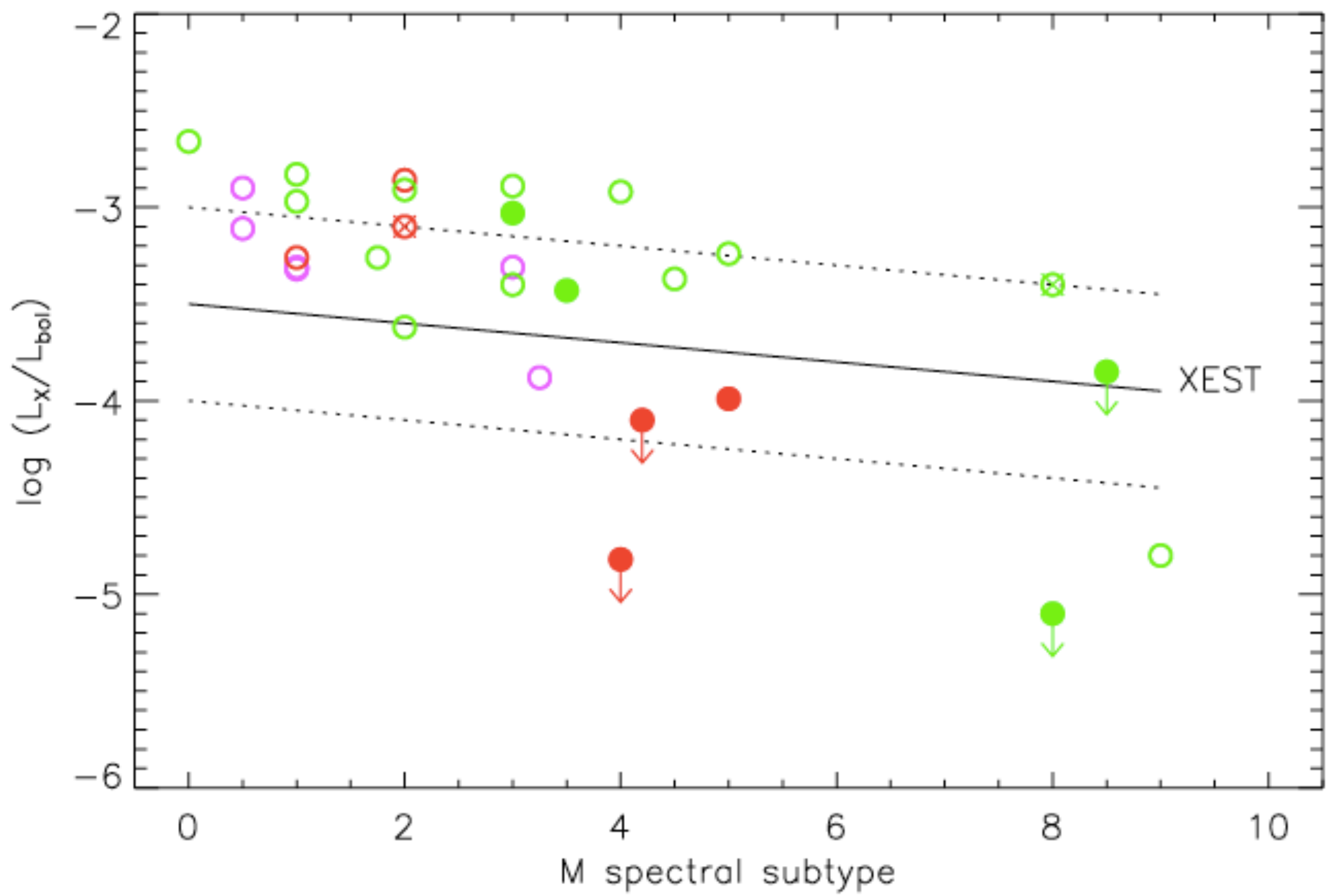
- 大橋聡史

M Stars in the TW Hya Association: Stellar X-rays and Disk Dissipation

Joel H. Kastner[1], David A. Principe[2,3], Kristina Punzi[1], Beate Stelzer[4], Uma Gorti[5], Ilaria Pascucci[6], Costanza Argiroffi[4,7]

Accepted in AJ

http://arxiv.org/pdf/1603.09307



Spectral typeの依存性

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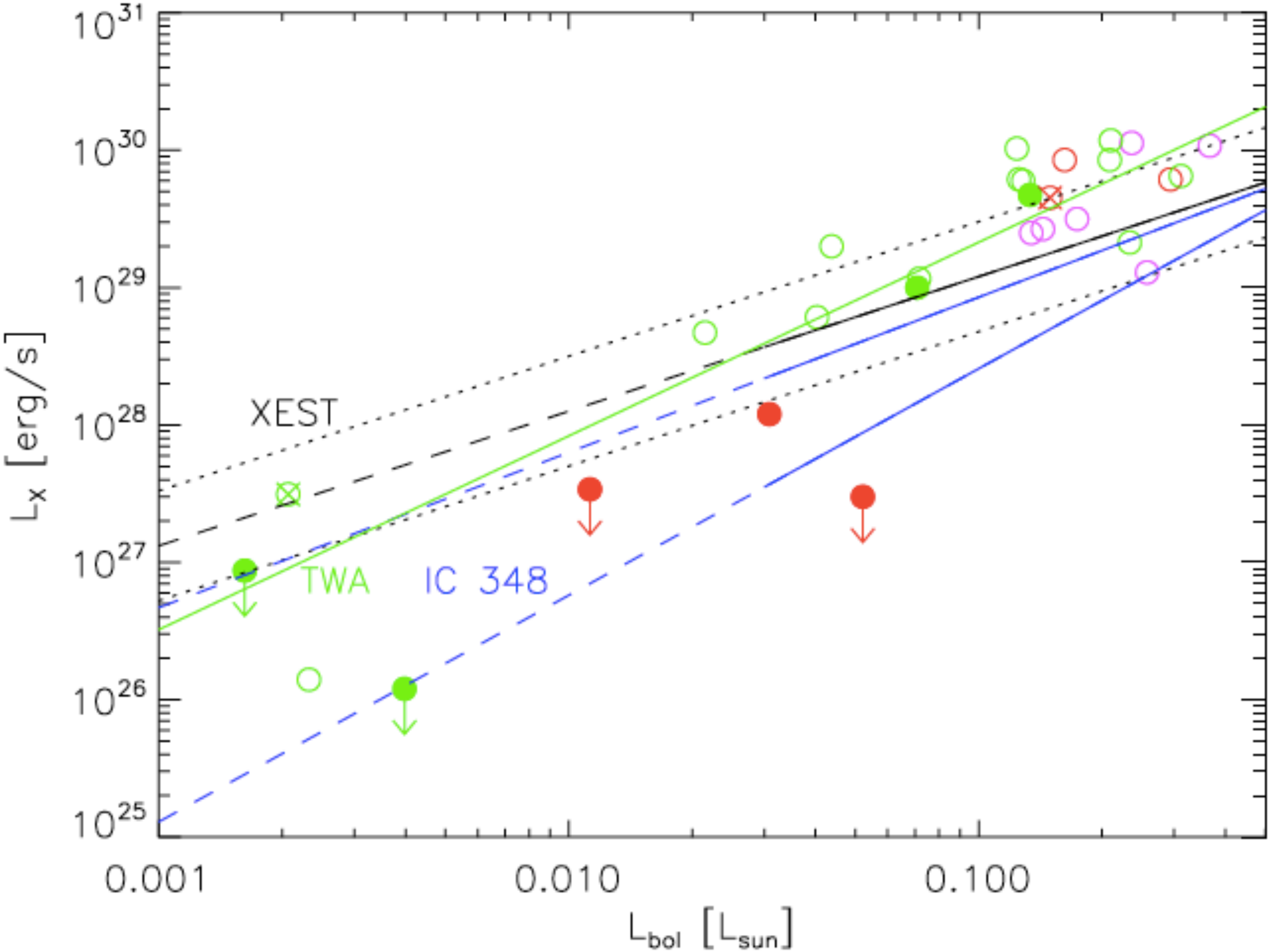


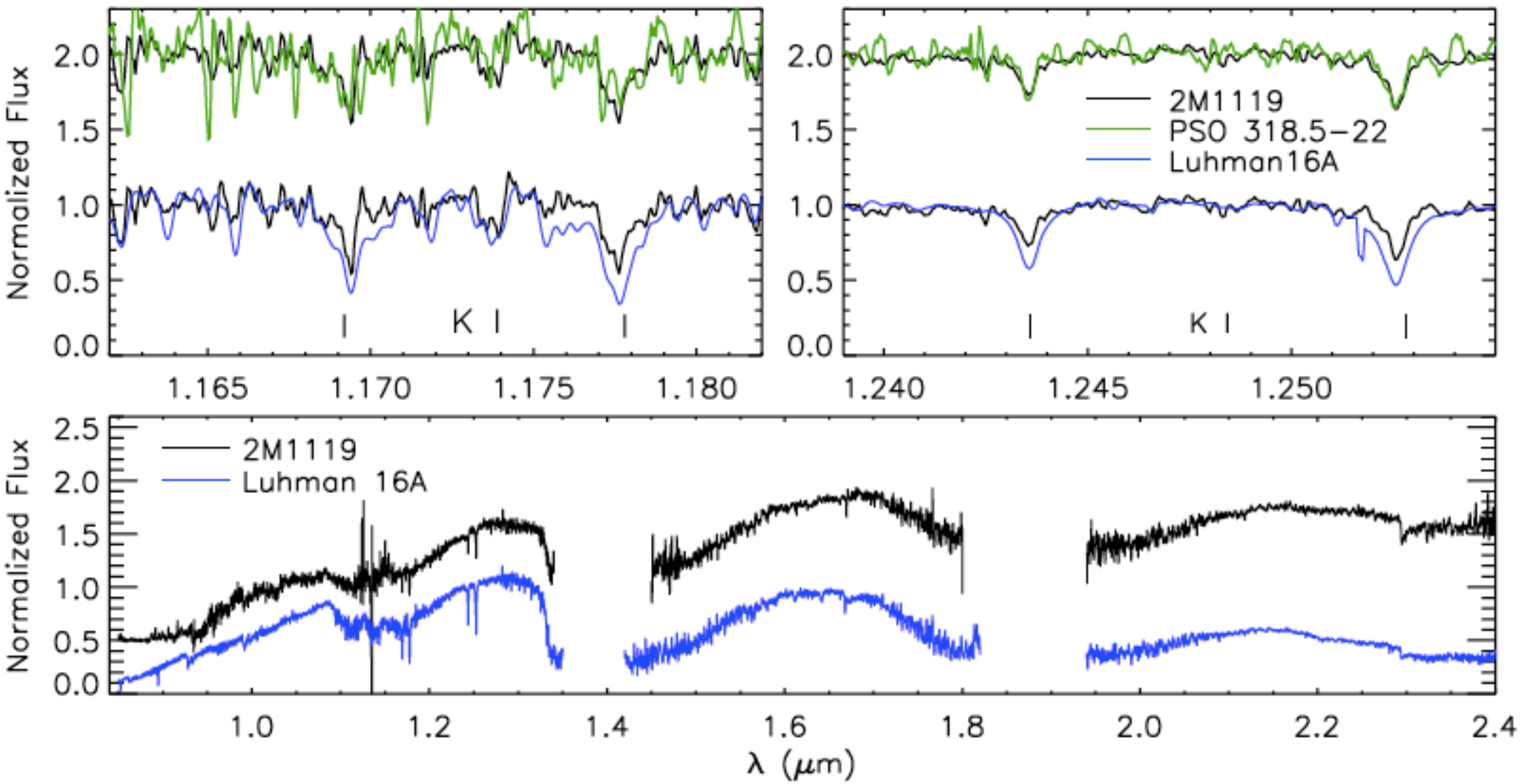
The Nearest Isolated Member of the TW Hydrae Association is a Giant Planet Analog

Kendra Kellogg[1], Stanimir Metchev[1,2], Jonathan Gagné[3,5] and Jacqueline Faherty[3,4,6]

Accepted in ApJL

http://arxiv.org/pdf/1603.08529

2M119 ~ 4.3-7.6 MJ



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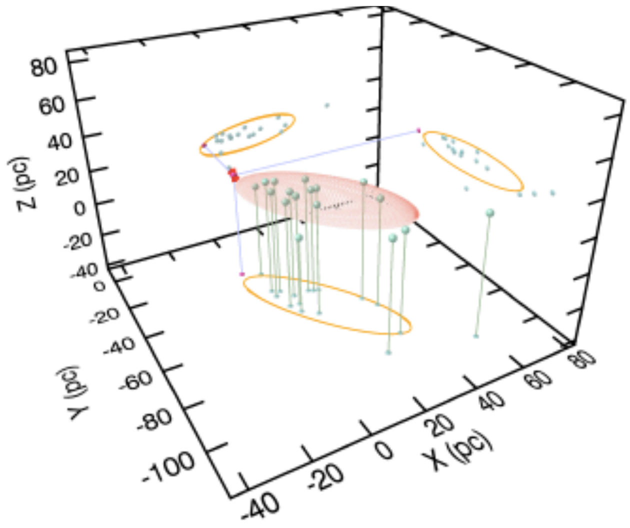
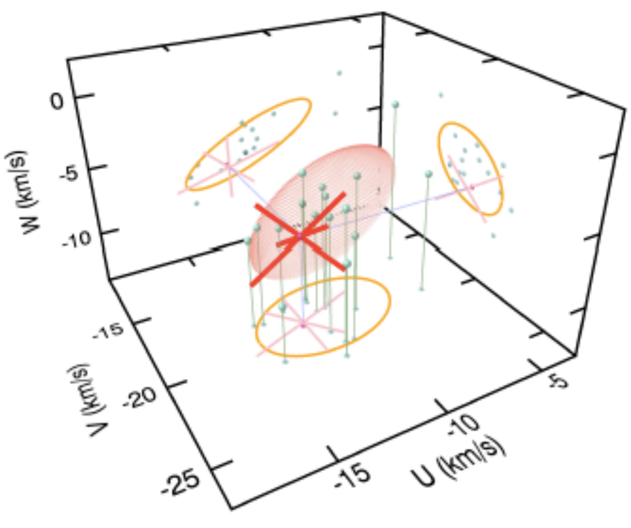
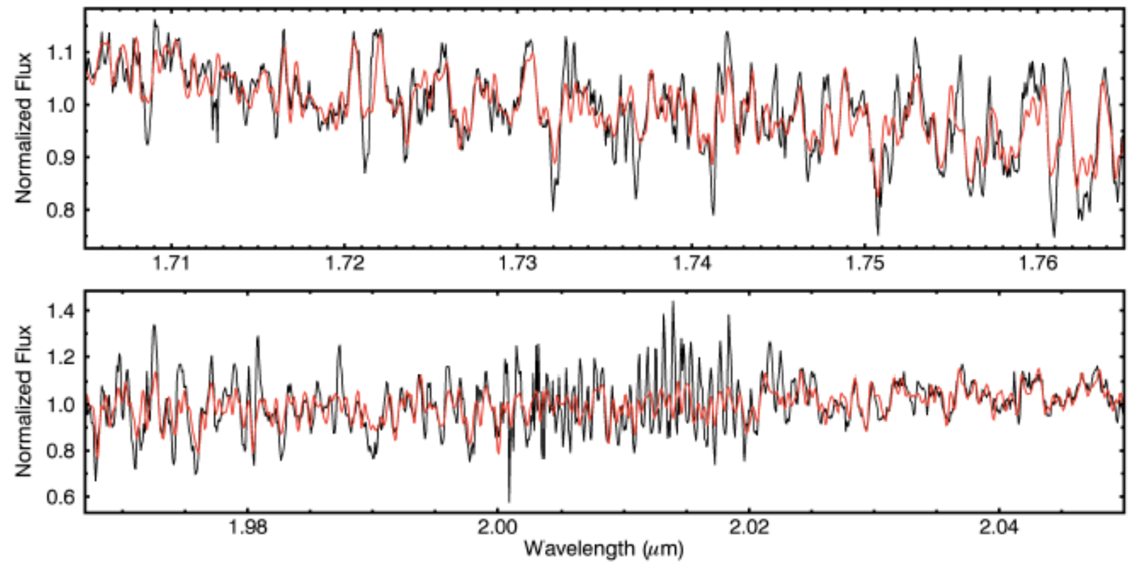


(a) XYZ galactic position



(b) UVW space velocity

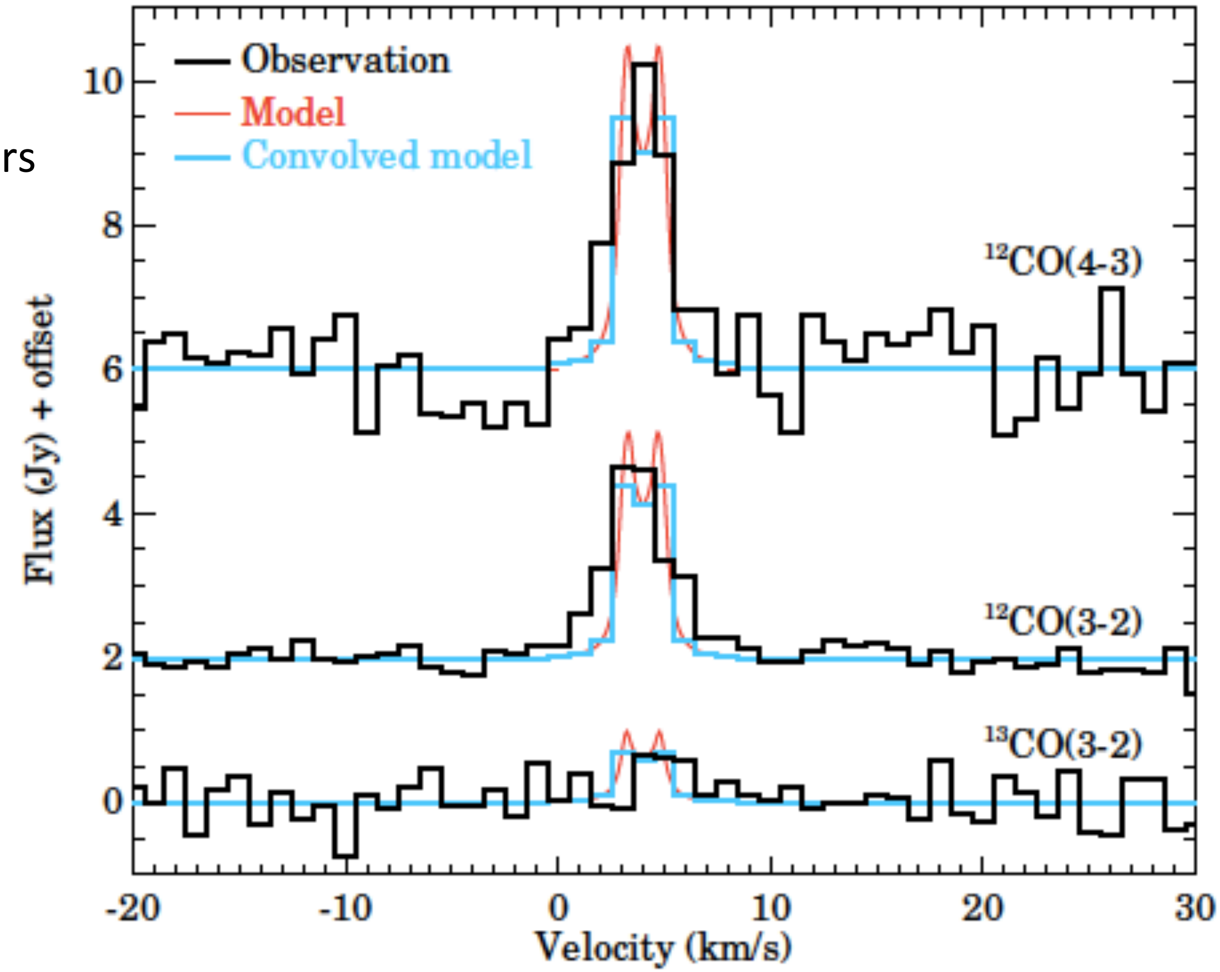


視線速度 8.5±3.3 km/s

Cold CO gas in the disk of the young eruptive star EX Lup

Á. Kóspál[1,2], P. Ábrahám[1], T. Csengeri[3], U. Gorti[4,5], Th. Henning[2], A. Moór[1], D. A. Semenov[2], L. Szűcs[6], and R. Güsten[3]

Mass accretion to protostars



Tgas=10 K

Mass=2.3×10^{-4}

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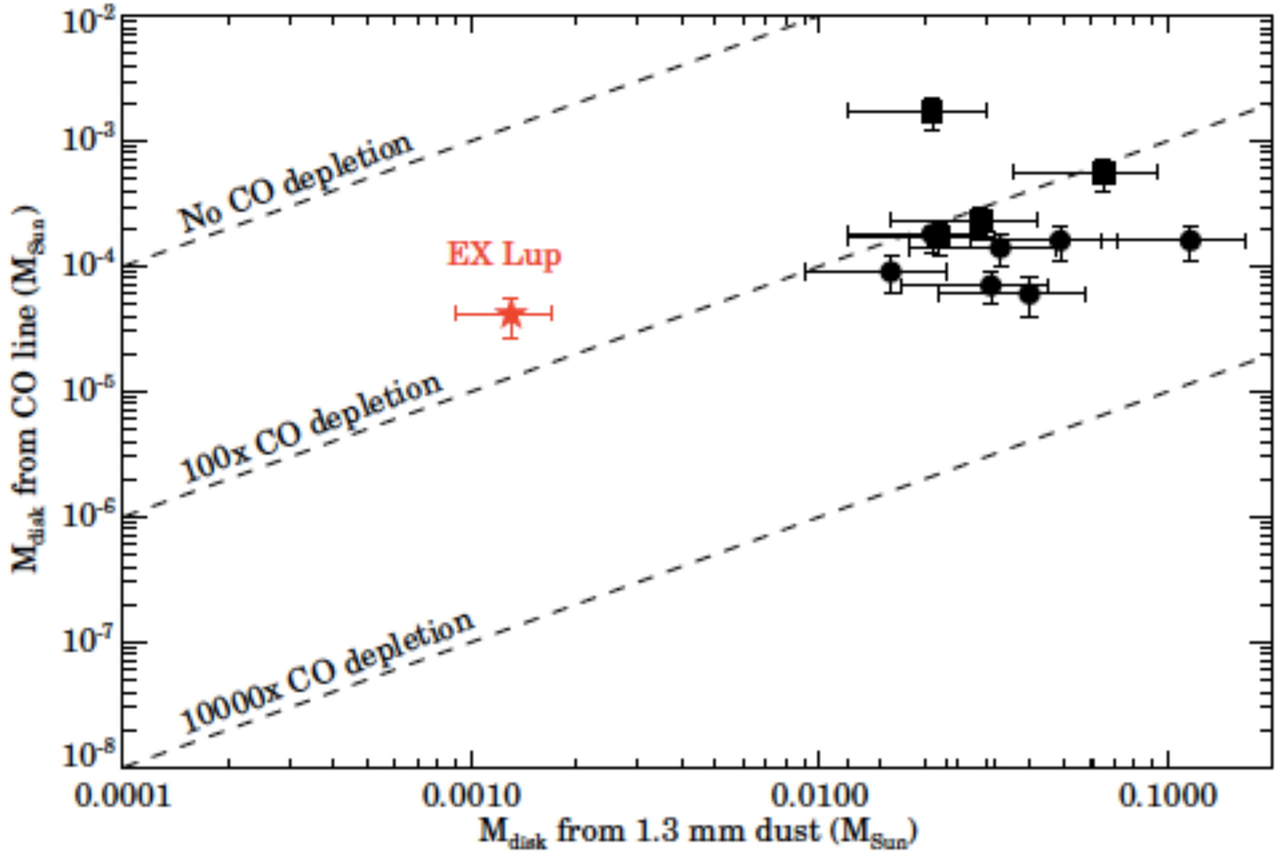
CO depletion or
Photodissociation (優勢)



Outburstは diskの外側へも寄与

Gravitational Instabilities in Circumstellar Disks

Kaitlin M. Kratter[1] and Giuseppe Lodato[2]

[1] Department of Astronomy and Steward Observatory, Univ. of Arizona, 933 N Cherry Ave, Tucson, AZ, 85721, USA
[2] Dipartimento di Fisica, Universitá degli Studi di Milan, Via Celoria 16, 20133 Milan, Italy

E-mail contact: kaitlin.kratter *at* gmail.com

Star and planet formation are the complex outcomes of gravitational collapse and angular momentum transport mediated by protostellar and protoplanetary disks. In this review we focus on the role of gravitational instability in this process. We begin with a brief overview of the observational evidence for massive disks that might be subject to gravitational instability, and then highlight the diverse ways in which the instability manifests itself in protostellar and protoplanetary disks: the generation of spiral arms, small scale turbulence-like density fluctuations, and fragmentation of the disk itself. We present the analytic theory that describes the linear growth phase of the instability, supplemented with a survey of numerical simulations that aim to capture the non-linear evolution. We emphasize the role of thermodynamics and large scale infall in controlling the outcome of the instability. Despite apparent controversies in the literature, we show a remarkable level of agreement between analytic predictions and numerical results. We highlight open questions related to (1) the development of a turbulent cascade in thin disks, and (2) the role of mode-mode coupling in setting the maximum angular momentum transport rate in thick disks.

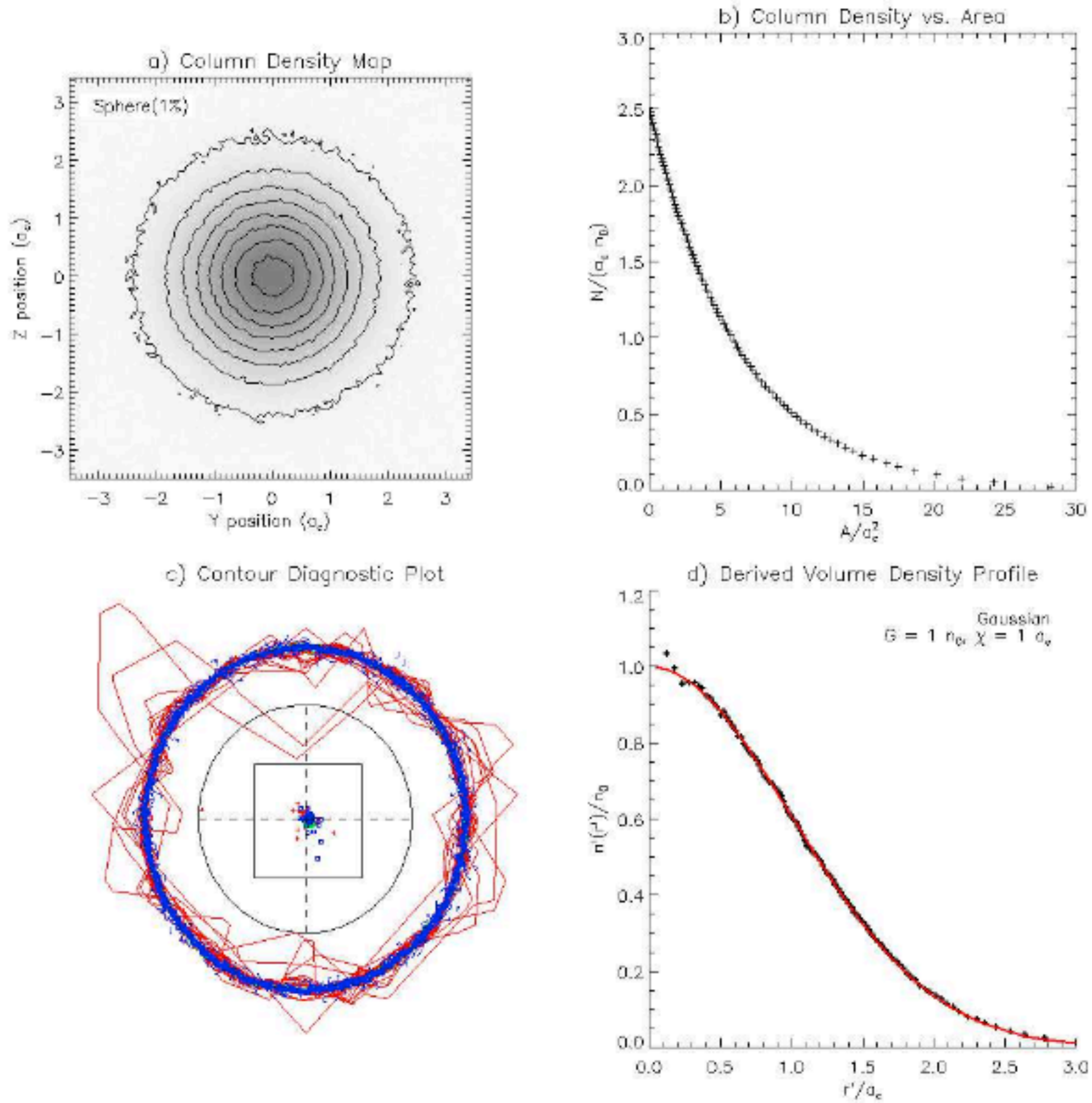
Accepted by ARAA

http://arxiv.org/pdf/1603.01280

Geometry-Independent Determination of Radial Density Distributions in Molecular Cloud Cores and Other Astronomical Objects

Marko Krco[1] and Paul F. Goldsmith[2]

観測から密度のべきを決定



Geometry-Independent Determination of Radial Density Distributions in Molecular Cloud Cores and Other Astronomical Objects

Marko Krco[1] and Paul F. Goldsmith[2]

内側 p=-2
外側 =-4

中心密度 ~ 10^4 cm^{-3}