Monday

Helen Kirk

Questions:

Chameleon system
- no hierarchical
- maybe $\nabla\rho$ or ∇g

Question about recalving or reaccreting why ∇V in clumps might ↑ frag, maybe interpretation

Notes:

- MHD ohmic dissipation Machida 08
  ambipolar diffusion Hosking & Whitworth 04
- B↑ fragment ↓
  B↑ rad ↑ frag ↓↓ A. Meyers et al 13
- Turbulence Bate et al 2002
- Coevality Murillo et al '16
- filament frag Pineda et al 2016

Brian Svoboda (UoA)

Question:

Notes:

exotic c-HC_3H ?

Thermal & Turbulent Jeans length

Virial parameters.

Will Fischer

Question: episodic FU orionis ~1000 year timescale.

Notes:
- Stochastic processes (secular vs)
- Hops 223, 383
- SED models yields total Lum envelope mass
- Feynman et al 2017 or 2018

Matthew Bate. Read Bate 2012 & 2018

Nicole Karnath

Question.

Notes:

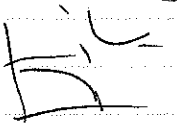
PBR objects ~5% Omin

Tobin

Take PV diagram

Take each V channel and fit gaussian

plot in logV / R space.



prototypical Class 0 VLA 1623

> could we better determine the age of first collapse by determining sound speed of dust & length of outflow?

Kimberly Ward-Duong

Questions

Notes:

Ben Tofflemire

Questions:

Notes:

- oxygen lines for high wind
- GG Tau very nice image.

Notes

Detecting / determining when and where planets form in disks

> Possibly use contamination lines in stars
> warping in velocity field lines.
> possibly forcing accretionary events

Look into CAI's during early star/planet formation Calcium condensate mm size early form timeline tracers

for tracing age via outflows

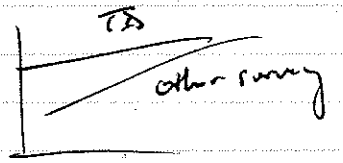
Plunkett et al 2015 ?

Tuesday

Ilaria Pascucci

> radial grain drift and plume Cuzi Zahnle 2009
hydrodynamics

→ Pinilla et al
dust disk stellar mass Transition disk relation



> Disk radius
Barenfeld
~~Tazzari~~
Tripathi
et al 2017.

possible relation between $L_{mm} \propto (Radius)^{1/2}$
check Tripathi & Tazzari et al 2017

Lupus survey
lupus Ansdell et al 2016.

> Possible extremely depleted CO Abundance in disk
May not be good tracer for low $\dot{M}$ disks!!

> New paper on APJ regarding different evolutionary tracks for various Transition disk

> check on forbidden lines

Megan Ansdell

Question:

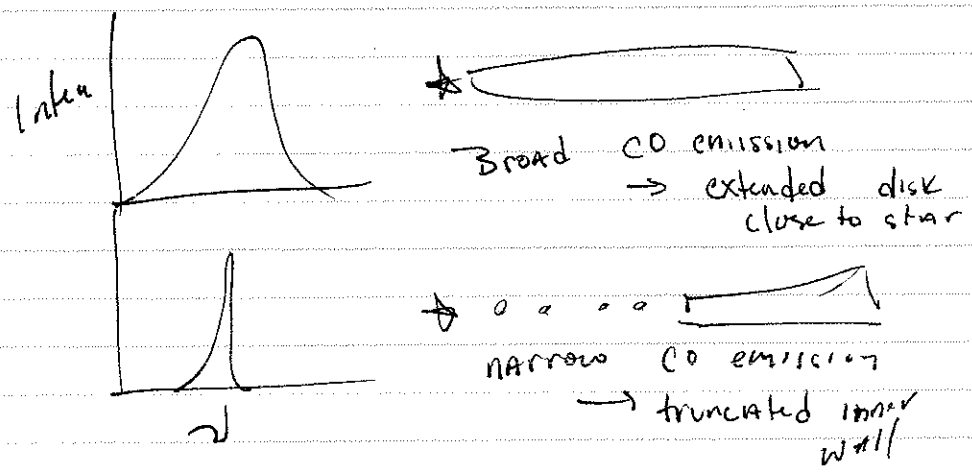
Sz91, interpret what is going on there? CASSANOVA et al 2016.
By masking your AND assuming a well known Kinematic Center of Stellar Mass.
~~Does~~ doesn't this bias your ~~sam~~ sample while improving SNR

Jane Huang

Very Awesome Scatter light & ~~Continuum~~ images

Andrew Banzatti

optical / IR / UV } spectroscopy
outflows winds disk dispersal
molecular gas comp thermochemical evolution
residual H_2 gas in disk



Check out PPVI chapter by Frank et al 2014
Very nice plot.

Dullemond

VSI (Vertical Shear Instability) origins of temperature gradient.
Causes a $\alpha \sim 10^{-4}$ turbulence.
} evidence Pinte et al '16 HL Tau

direct measurement of V structure in turbulent eddies Flaherty

Dust particles can be concentrated in pressure relative MAXIMUM as function of radius. Gas can support against pressure while dust cannot.

Szulaggi 2017 CPD modelling then replicate synthetic observations.

Reasons for pressure bumps?

> Toroidal flows Johansen, Henning, Klahr : Loren-Aguilar & Bate 2015

> Zonal Flow : Flock 2016

> Zhang 2015 Ice lines

> Secular GI pebble ?

Viscous Ring Instability dullemon Denzlin 2018

process
gas pressure attracts dust
dust
⋮

Modelling inclination w/ shadows,
Facchini Lodato Price 2013
& 2018

Kevin Flaherty

chondrules
CAIs

MRI theory predicts >10% Cs in upper layer

Daniel Cyole

MRI

deadzones

$$\frac{\partial B}{\partial t} = \nabla \times \left\{ [v \times B] - \eta \nabla \times B - \left[\frac{J \times B}{e n_e}\right] + \left[\frac{(J \times B) \times B}{c \gamma \rho_i \rho}\right] \right\}$$

ideal — non ideal "turbulence" — Hall effect — Ambi polar winds.

check Armitage 2014 2016

Thin disk equation Shakura & Sunyaev 1973

Meredith Hughes & Jake Simon

Turbulence is just generally defined by something non thermal line broadening.

DISCUSSION on NIR, MIR probing gas & grain

Ilse Cleeves

Check bill Saxton phases of star formation.

1.) How does the composition of the disk get incorp to planets
2.) How do the physical properties of the disk influence forming ~~form~~ planet formation.

good picture of disk chemical composition, disk physical structure.

3D maps of disks
Rosenfeld 2013

Ask John where to find pencil & Brian masmec.

Stefano Facchini:

Zonal flows Sim.

Good image

TAZZAR.

Zinger Approx rad disk
dullemond 2001
Chiang Goldreich 1997

> The luminosity problem of ~~high~~ low ~~lumino~~ luminosity
even though high Accretionary events.
look for Lin Hillenbrand
and Will Fischer.

Wednesday

Benisty, Mariam.

Woms

~~Kep~~ Keppler

140 pc
0.24 ~~arc~~ arcsec
0.~~0~~24"
0.25 AU source.

Cazolleti

> Check optical thickness
$T_{bright} = T_{bb}(1 - e^{-\tau})$

> check spectral index across disk to analyze grain size

Thursday

Phil Armitage.

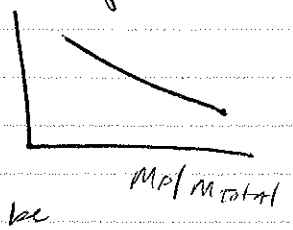
Hill Radius $r_{Hill} = \left(\frac{M_{planet}}{3 M_{star}}\right)^{1/3} a$ — semi major axis

check out Bondi radius vs Hill radius

$t_{instability} = f\left(\frac{\Delta a}{M_p^{1/4}}\right)$

gravitational collapse $\rho_p \sim \frac{M_*}{a^3}$

Most of mass seems to be locked into large particles $\frac{dN}{dM_p} \propto M^{-1.6}$



So if you plop down same mass in disk, most particle will be in large most sized grains.

Accretion radius $\left(\frac{t_{BT}}{t_r}\right)^{1/2} r_{Bondi}$

~~Model~~ Modelling HD 142527

Price et al 2018 WYSIWYG

> Empirical Temp

Erik Weaver @ Rice

high resolution

Weaver et al 2018

ApJ 853, 113

> create a more accurate T model

$f(r)$

~~Friday~~
~~Thursday~~

John Carpenter

Konguet-al 2018

$\Delta T_B \propto \frac{\Delta S_\nu}{\theta^2}$

Brightness is related to FWHM of synthesized beam.

April 19 2018 Cycle 6 DUE !!
1500 UTC

proposals >30hrs have low acceptance rate

1~30hrs roughly 20% rate.

ALMA Ambassadors for partaboes