Questions and Answers

The Formation of Stars and Planetary Systems, 2010, September 6-9, Särö, Sweden

Section & Talk by Uma Gorti

Name/Question Hannah Jang-Condell

comment on the nature of inner disk material: The question is not so much where does the inner disk material come from, but why isn't there more? One would expect torques between a planet and a disk to force the planet into the star in the absence of disk material inside the ~~[illegible]~~ planet's orbit to balance the ~~[illegible]~~ torques

Name/Answer

I should clarify that the models only constrain the surface density distribution, but cannot really say anything about the presence or absence of a planet. However, the planet explanation appears the most ~~reasonable~~ explanation. The large surface density contrast (~ 100) may imply that the planet mass is large $\sim 10\, M_J$ or so, assuming that a $1\, M_J$ planet produces a ~ 10 reduction in Σ and that the contrast scales with planet mass. Such a massive planet would not be torqued by the disk which is of comparable mass. Also photoevaporation may be depleting the inner rim also impeding the disk torques on the planet

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Section & Talk by ..... U. Gorti .....

Name/Question ..... Hendrik Linz .....

You argue for a quite large gap radius of ~4 AU. MIR interferometric observations by Ratzka et al. (2007) seem to indicate, that this would not be in agreement with their findings. Instead they argue for an inner radius of the dust disk of 0.5 - 0.8 AU. Can you comment on this?

Name/Answer .....

We did try to fit a gas model to the dust disk of Ratzka et al. Although the level of CO rovibrational emission from the gas very close to the central star ($\lesssim$ 0.1 - 0.2 AU) is well-matched by both the dust models, we find it very difficult to match the observed levels of H_2 S(1) and S(2) emission. A (optically thick) full gas disk produces too much H_2 emission, and OH thermal emission ~~is~~ to and ~~do~~ it is very difficult to get good agreement with data. An important caveat however is that the full extent of parameter space has not been explored and it may indeed be possible to find a gas disk configuration consistent with the Ratzka et al dust models