



Modeling the X-ray emission from accretion shock on cTTSs

G.G. Sacco¹, S. Orlando², C. Argiroffi^{2,3}, A. Maggio²,
G. Peres^{2,3}, F. Reale^{2,3}, R. L. Curran¹

1 Rochester Institute of Technology

2 INAF-Osservatorio Astronomico di Palermo

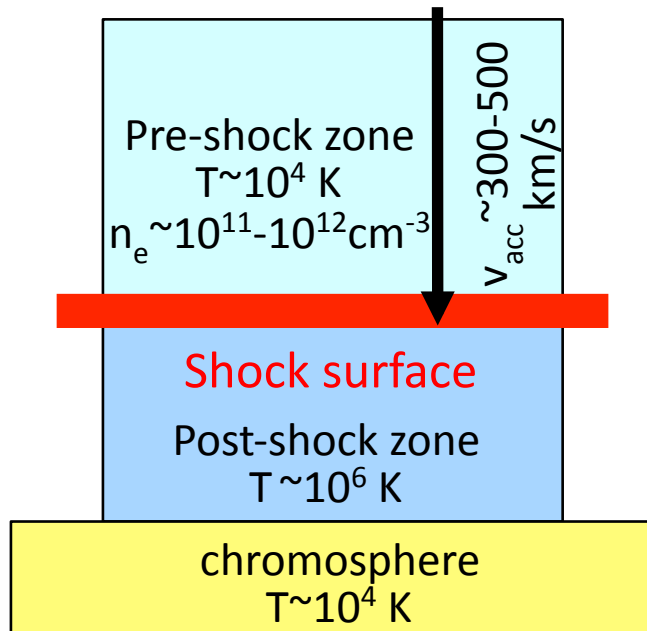
3 DSFA-Università di Palermo

Soft x-ray emission from cTTSs is likely due to shock heated plasma (T. Montmerle talk)

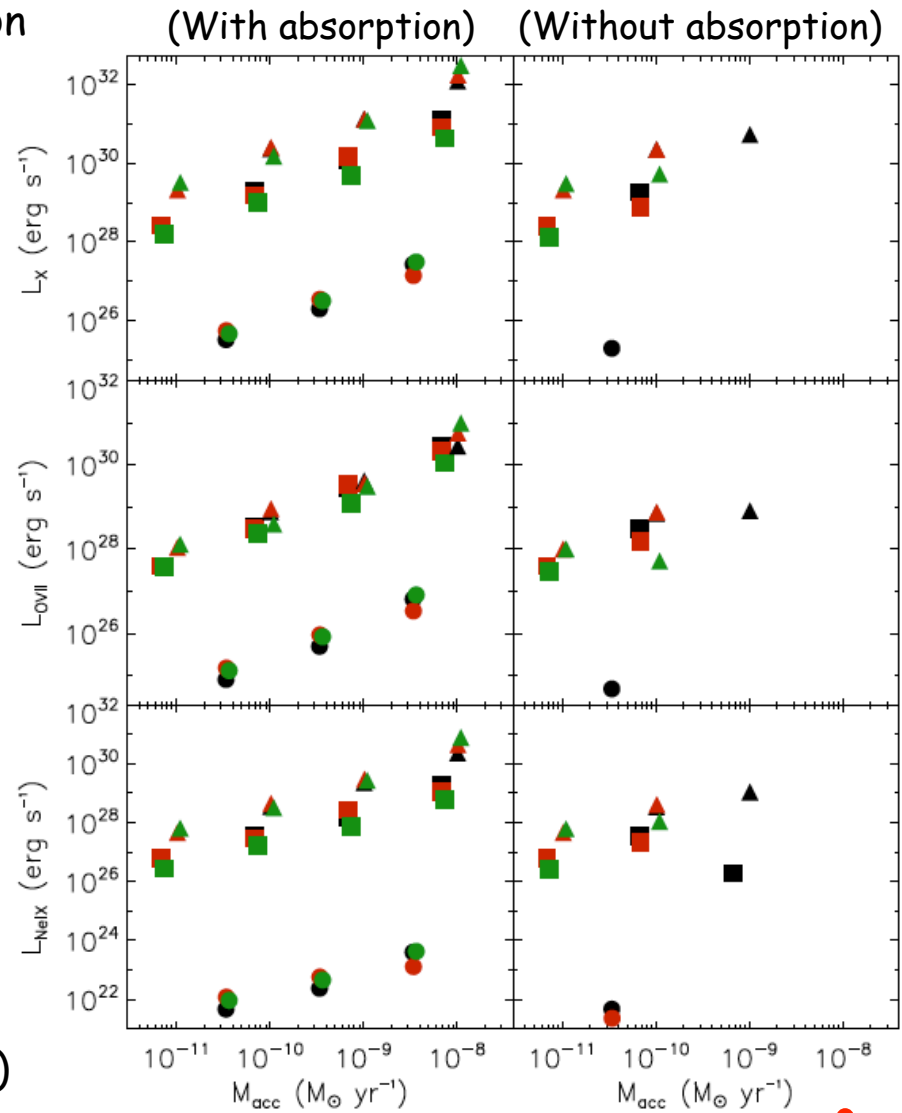
plasma- $\beta \ll 1$
 One-dimensional
 Hydrodynamical simulations

We model the interaction between an accretion flow and the stellar chromosphere.

1. Investigate the physical properties of the shock-heated plasma
2. Investigate the observability of the X-ray emission from shock-heated plasma in young stars



(Sacco et al. 2008; Sacco et al. 2010 submitted)



Magnetic fields: core collapse to YSOs

London, 05/18/2010

2D MHD simulations (Orlando et al. 2010)

Aims: study plasma dynamics for $\text{Plasma-}\beta \geq 1$
Results: ($\beta \geq 10$) strong outflow at the base of the accretion columns;
($\beta \sim 1$) accretion flow is well-confined from the magnetic field; 1D simulations well describe the main physical properties

