...previously, in 8.972...

Where do we come from?

PLANET FORMATION

Are we alone?

EXOBIOLOGY

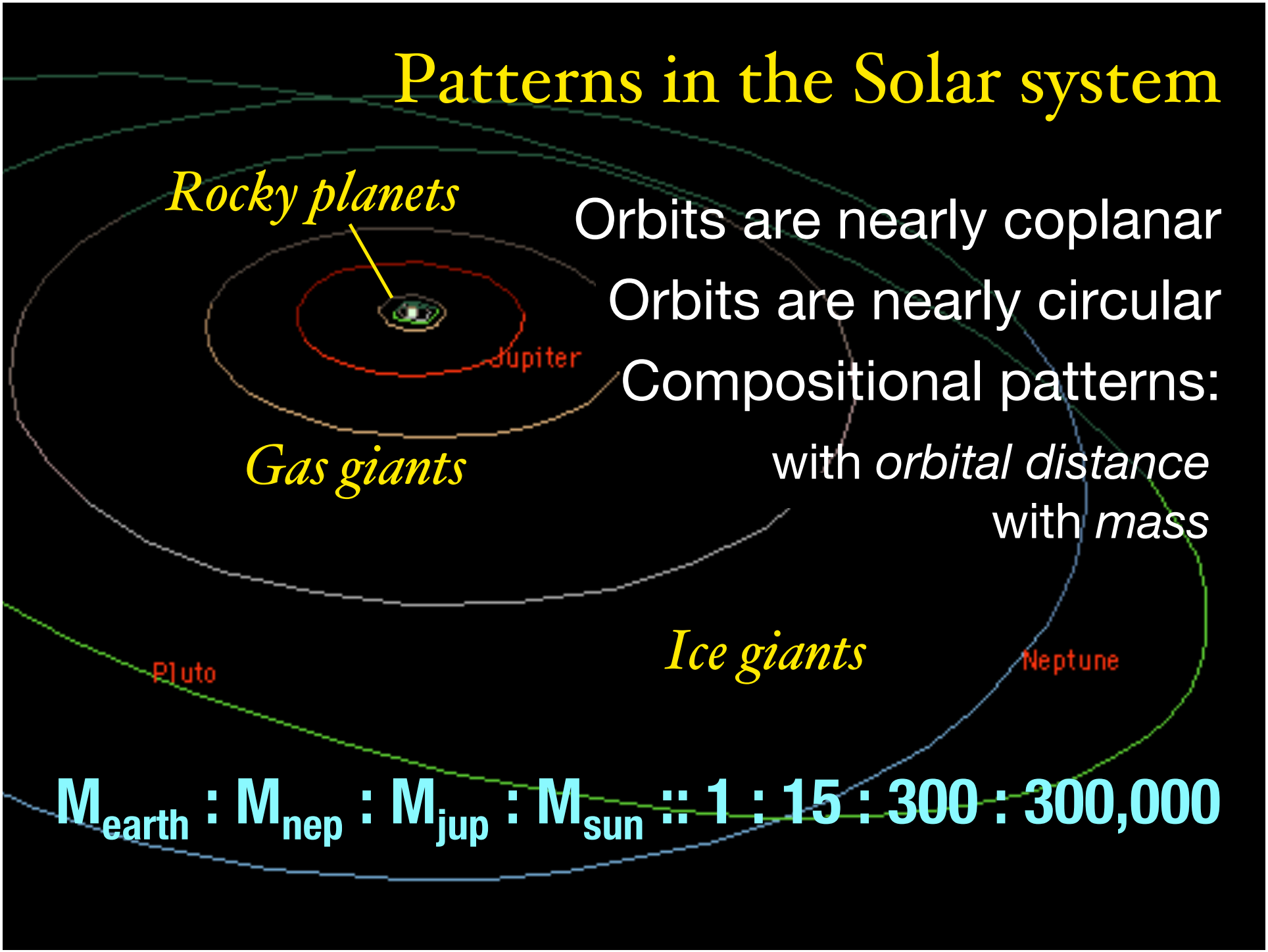
Where do we come from?

PLANET FORMATION

Are we alone?

EXOBIOLOGY

Patterns in the Solar system



Orbits are nearly coplanar

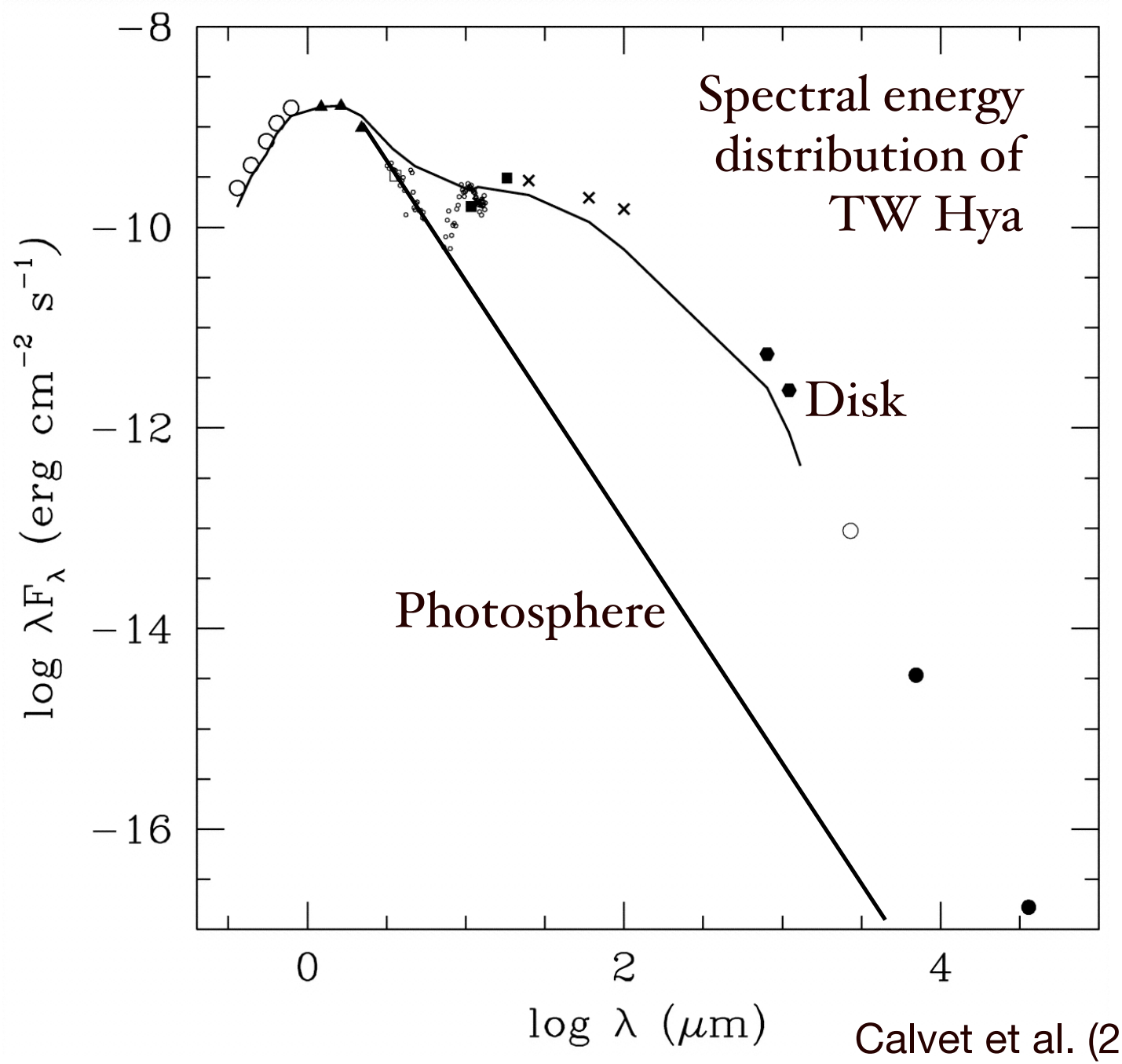
Orbits are nearly circular

Compositional patterns:

with *orbital distance*

with *mass*

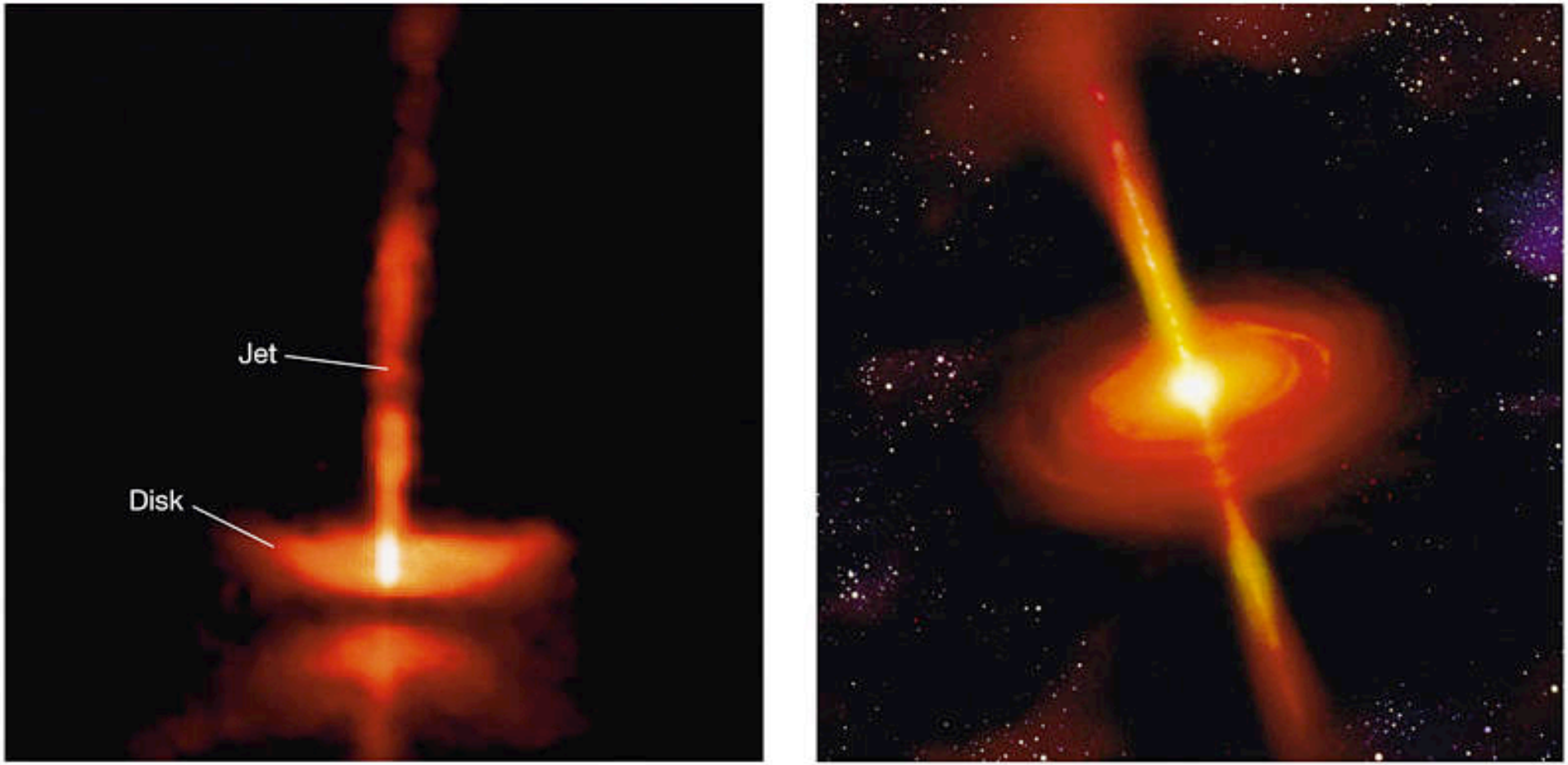
$M_{earth} : M_{nep} : M_{jup} : M_{sun} :: 1 : 15 : 300 : 300{,}000$



Calvet et al. (2002)

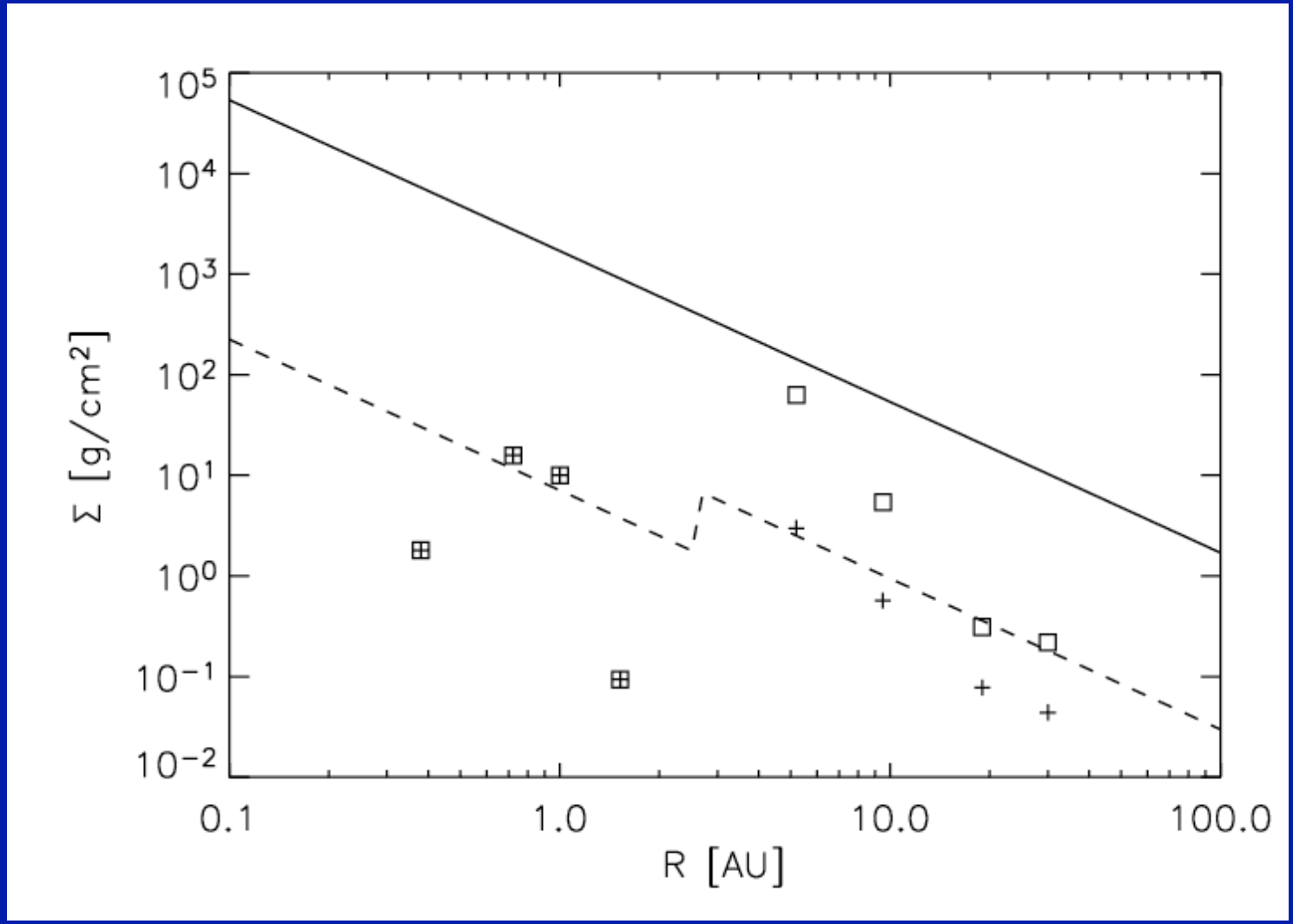
Core-nucleated growth

- Dust settles to midplane
- Agglomerates into ~1km objects (somehow)
- Growth through gravitationally-focused collisions
- Begin accreting gas at ~1 M_E
- Runaway accretion of gas when core reaches ~10 M_E

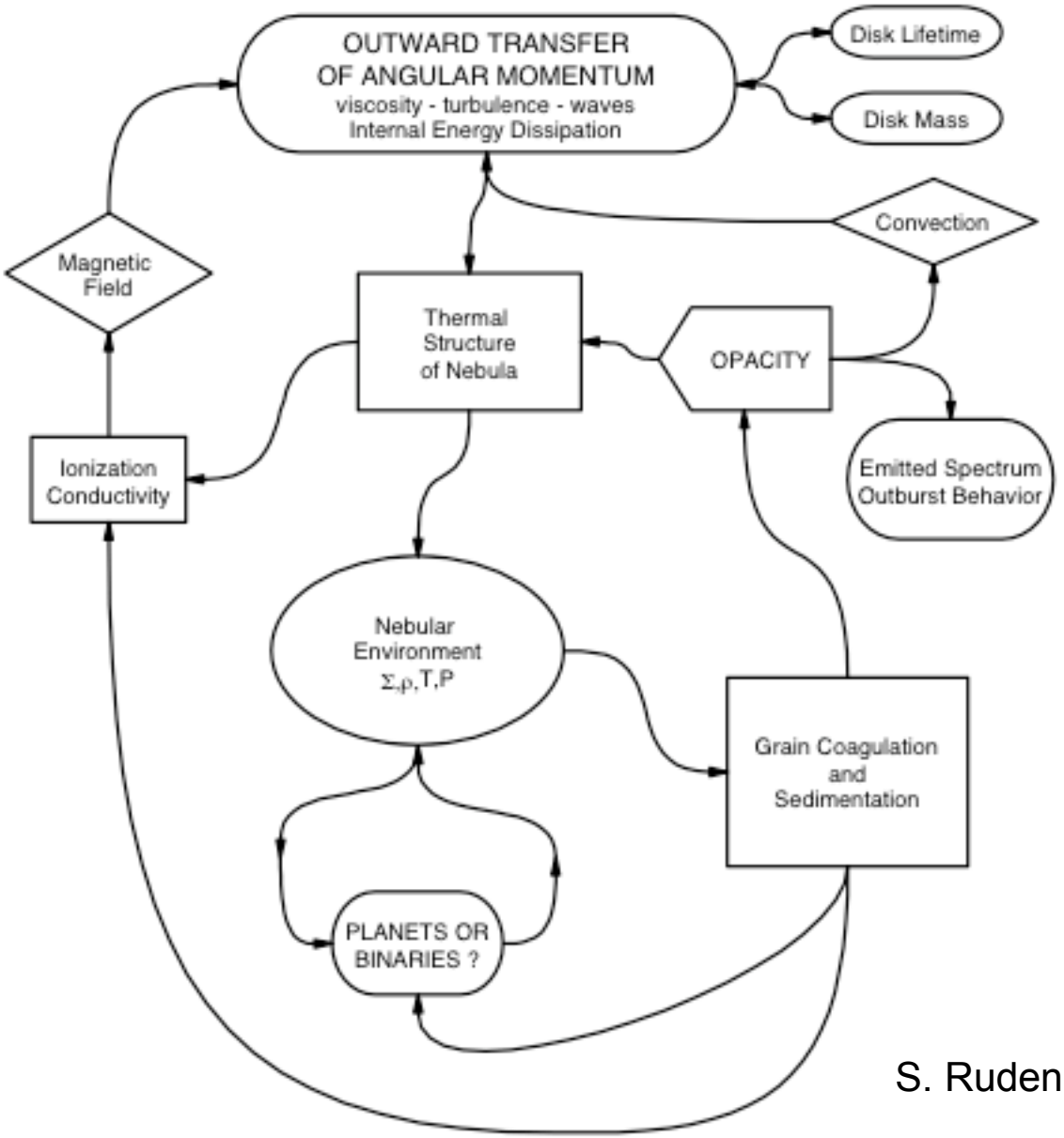


Minimum-mass solar nebula

Weidenschilling 1977; Hayashi 1981



Box = planet, plus = estimated rocky core



S. Ruden, 1999

**RELATIONSHIPS AND DEPENDENCIES
AMONG PROTOPLANETARY DISK PROCESSES**

Disappearance of disks