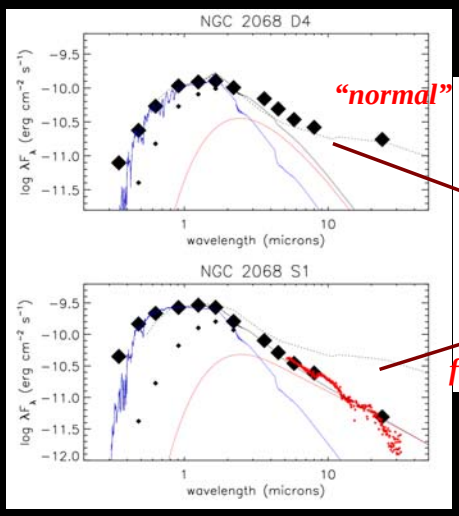
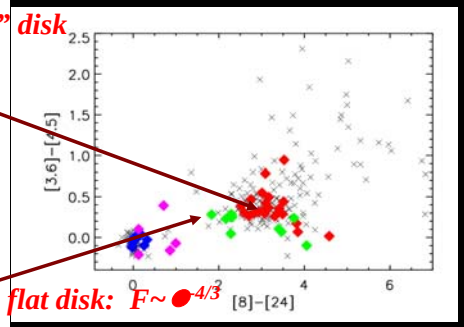
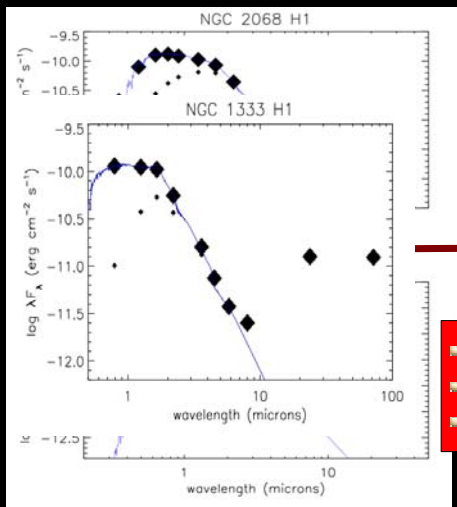
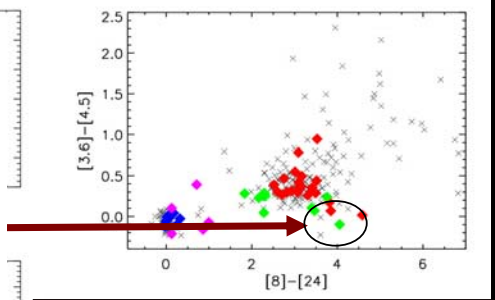


"normal" disk

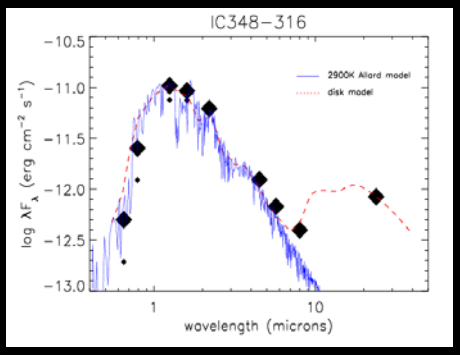


flat disk: F~ ν^-4/3





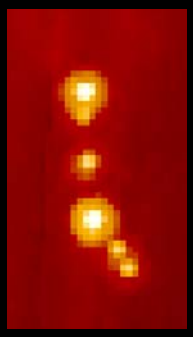
- as in CoKu Tau/4, TW Hya
- ~5% of all disks
- grain growth? planet formation?



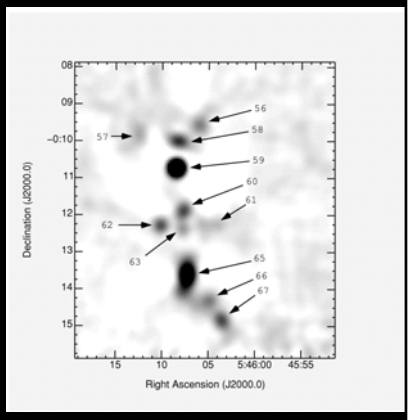
- M~0.075 M_{sun}
- t~1-3 Myr
- disk models require R_{in} ~ 0.5-1 AU
  - strong limits on formation mechanisms: no accretion; photoevaporation unlikely
  - if planet, M~2-20 M_{earth}

Region	*Age (Myr)*	*Fraction of disks with holes*
NGC 1333	<1	1/66 (1%)
Ophiuchus	1	1/70 (1%)
NGC 2068/2071	1	8/174 (5%)
IC 348	1-3	10/75 (13%)
Orion OB1b	3-5	~14%
Orion OB1a	10	~6%

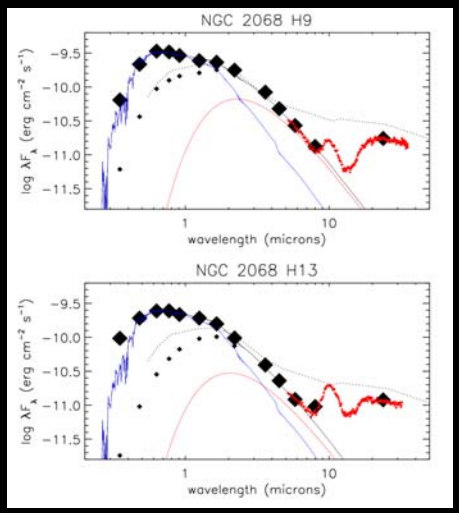
IRAC 3.6, 4.5, 8 microns



MIPS 70 microns



SCUBA 850 microns



- 24 micron excesses in the Pleiades (100 Myr):
  - 9/28 B9-A9 (30%)
  - 7/33 G0-K0 (20%)
- similar results for A stars from other clusters, field stars at similar ages
- upper envelope decreases exponentially as a function of age
- possible discrepancy in IC 2391 (~30 Myr), only 1/15 A-stars (7%) shows excess