Rates and Rotation: AICs

Uncertainties in the Rate:

Do Accreting White Dwarfs Gain Mass?

Contrast Kato & Hachisu (1999)

with Cassisi et al. (1998)

Do Collapsing WDs Produce Thermonuclear Explosions (Type Ia SN) or Neutron Stars?

Nomoto & Kondo (1991)

Rate is Difficult to Determine from First Principles!

We CAN get an Upper Limit on the AIC Rate!

AICs Eject Neutron Rich Material Which Pollutes the Galaxy

$\text{Rate}_{\text{AICs}} \lesssim 10^{-5}\ \text{yr}^{-1}$: Fryer et al. (1999)

Rotation: AICs are Likely to be Rotating Rapidly

Due to their Small Moments of Inertia:

$I_{WD}/(M_{WD}R_{WD}^2)<0.1$, Accreting 0.1 $M_\odot$ Can Cause a Stationary WD to Spin Up to Breakup!

$J_{WD} \approx 4\times10^{49}\ \text{g cm}^2\ \text{s}^{-1}$: Liu & Lindblom 2001