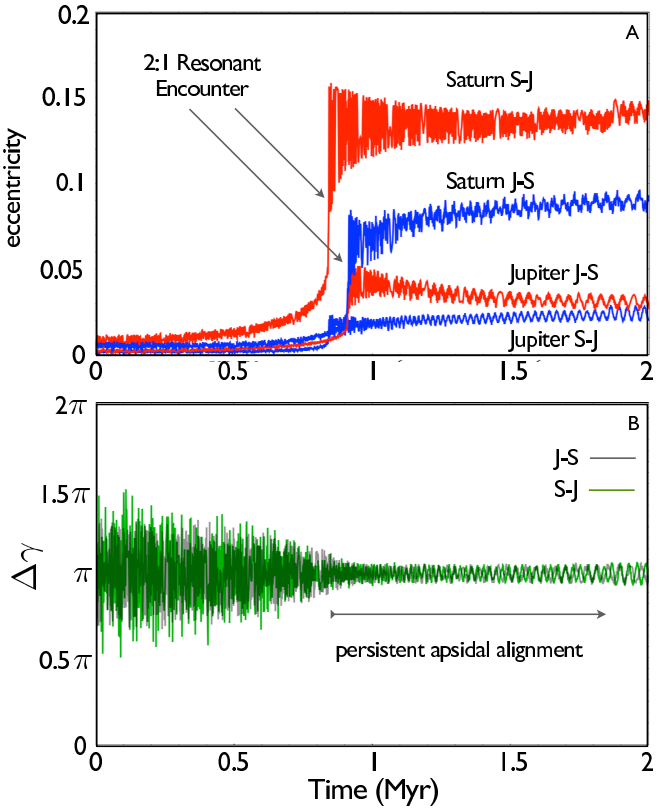
A
2:1 Resonant
Encounter
Saturn S-J
Saturn J-S
Jupiter J-S
Jupiter S-J
eccentricity
0.2
0.15
0.1
0.05
0
0
0.5
1
1.5
2
B
J-S
S-J
persistent apsidal alignment
$\Delta\gamma$
2π
1.5π
π
0.5π
0
Time (Myr)