



Formation of Kuiper Belt Binaries

Hilke E. Schlichting¹ & Re'em Sari^{1,2}

¹California Institute of Technology, Pasadena, USA, ²Hebrew University, Jerusalem, Israel

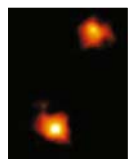
The Kuiper Belt & Its Binaries:

The Kuiper Belt is located in the outer region of our solar system, extending from the orbit of Neptune (at 30 AU) to ~ 55 AU from the Sun. To date, more than 1000 members of the Kuiper Belt have been discovered with radii ranging from few tens of km to about 1000km. Its best known member is Pluto (Radius = 1137km) with its moon Charon.

10 to 20% of Kuiper Belt Objects are in binaries. 48 such systems are currently known. We can identify two classes of Kuiper Belt Binaries:



Artist's conception of the four largest currently known Kuiper Belt objects and their moons.



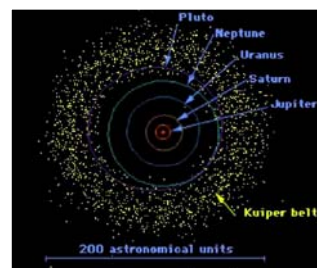
Kuiper Belt binary WW31, eccentricity = 0.8, Period = 570 days

Class 1:

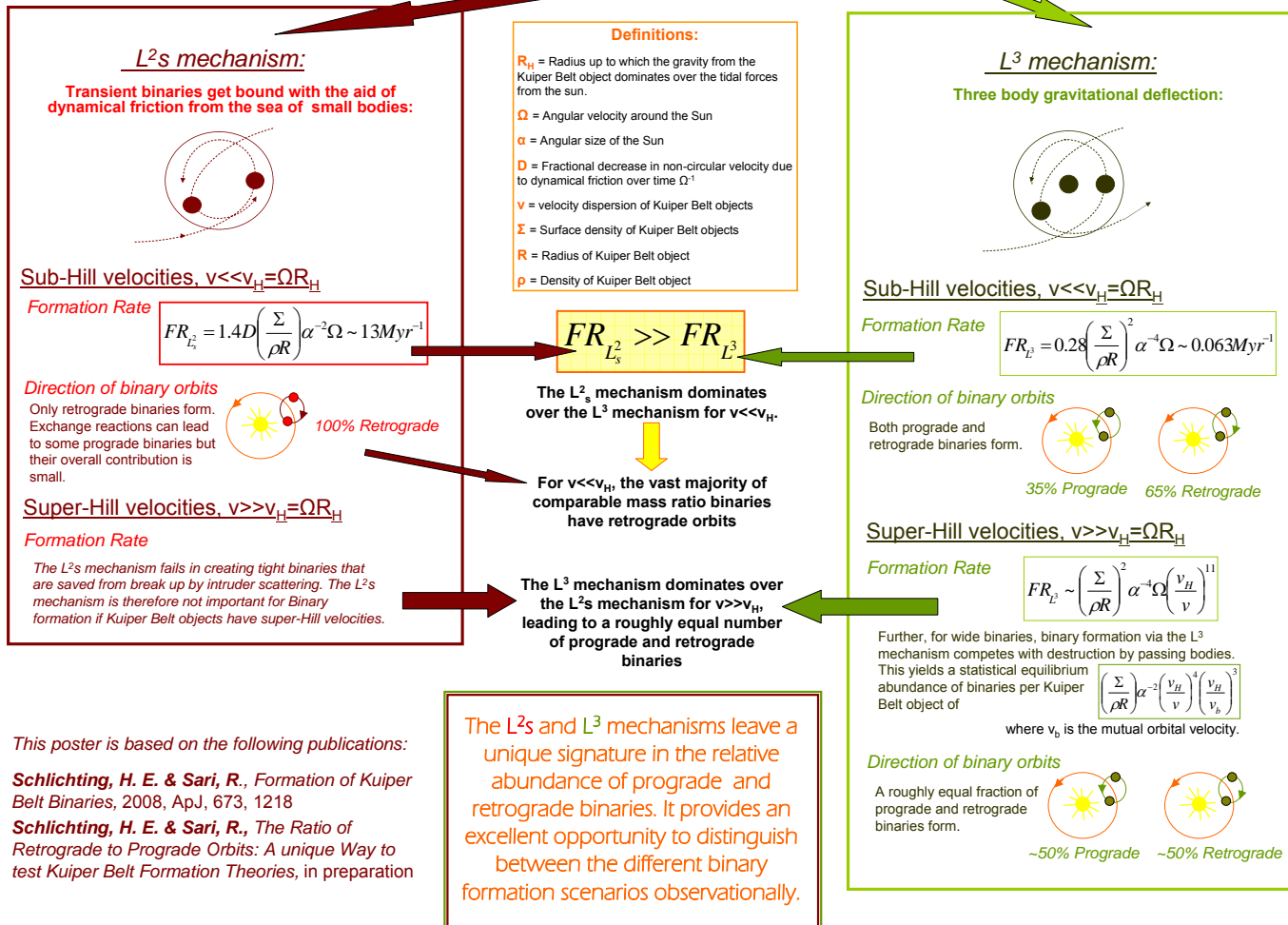
Most likely formation scenario: collision and tidal evolution, as has been proposed for the formation of the Moon.

Class 2:

Possible formation scenarios proposed by Goldreich et al. (2002):



Face on view of the solar system showing the Sun (red), the giant planets and Kuiper Belt objects (yellow).



This poster is based on the following publications:

Schlichting, H. E. & Sari, R., Formation of Kuiper Belt Binaries, 2008, ApJ, 673, 1218

Schlichting, H. E. & Sari, R., The Ratio of Retrograde to Prograde Orbits: A unique Way to test Kuiper Belt Formation Theories, in preparation

