Thursday, March 20, 2003
ORIGINS OF PLANETARY SYSTEMS
8:30 a.m. Salon C

Chairs: F. M. Richter
A. P. Boss

Boss A. P. *
Gas Giant Protoplanet Formation: Disk Instability Models with Detailed Thermodynamics and Artificial Viscosity **[#1075]**
We show that when artificial viscosity is included in 3D disk instability models with radiative and convective cooling, the tendency to form clumps is reduced somewhat, but not eliminated, unless the artificial viscosity is increased by a factor of ten over the nominal value.

Weidenschilling S. J. *
Planetesimal Formation in Two Dimensions: Putting an Edge on the Solar System **[#1707]**
Radial migration of solid bodies due to gas drag during coagulation tends to produce a sharp outer edge to the planetesimal swarm, consistent with the observed cut-off of Kuiper Belt objects.

Hahn J. M. *
The Secular Evolution of the Primordial Kuiper Belt **[#2121]**
A model of the secular evolution of the primordial Kuiper Belt is described. It is shown that a Kuiper Belt having but a modest amount of mass is very susceptible to the propagation of spiral waves.

Estrada P. R. * Mosqueira I.
Gap-opening, Disk Clearing, and the Survival of the Regular Satellites of Jupiter and Saturn **[#1820]**
In this study we investigate the possibility that disk-satellite interactions account for both the survival of satellites and the clearing of the gas disk.

Marov M. Ya. * Ipatov S. I.
Volatiles Inventory to the Inner Planets Due to Small Bodies Migration **[#1099]**
The amount of ice delivered to the Earth by planetesimals during formation of the giant planets is of the order of the mass of water in the Earth oceans. Mars acquired more water per unit mass of a planet than Earth.

Cameron A. G. W. *
The Supernova Trigger and Meteoritic Components **[#1083]**
The supernova trigger is the source of the short-lived extinct radioactivities injected into the solar nebula together with, as condensation products in the expanding supernova envelope, CAIs, AOAs, FUN CAIs, and some presolar grains.

Alexander C. M. O'D. *
Making CAIs and Chondrules from CI Dust in a Canonical Nebula **[#1391]**
Kinetic modeling shows that when gas-melt exchange is taken into account, chondrule and CAI elemental and isotopic compositions can be explained by formation from CI dust compositions under canonical nebula conditions at 2–3 AU.

Clarke T. L. *
Terrestrial Planets are Rare **[#1886]**
Early heating by ^{26}Al decay is found to be a condition for the formation of terrestrial planets implying that terrestrial planets are rare.

Shukolyukov A. * Lugmair G. W. Bogdanovski O.
Manganese-Chromium Isotope Systematics of Ivuna, Kainsaz and Other Carbonaceous Chondrites **[#1279]**
We present our new results on the Mn-Cr isotope systematics in carbonaceous chondrites, which may be helpful for understanding some processes that occurred in the early solar system.

Chen J. H. * Papanastassiou D. A. Wasserburg G. J.
Endemic Ru Isotopic Anomalies in Iron Meteorites and in Allende **[#1789]**
We have identified endemic Ru isotope anomalies (s-process only Ru-100 deficits) in iron meteorites and in the Allende whole rock.

Yin Q. Z. * Jacobsen S. B.
The Initial $^{182}W/^{183}W$ and $^{182}Hf/^{180}Hf$ of the Solar System and a Consistent Chronology with Pb-Pb Ages **[#1857]**
The issue of what is true solar initial $^{182}W/^{183}W$ ratio is examined. We find a consistent result in iron meteorites with that of chondrite metals. Hf-W model ages are consistent with phosphate Pb-Pb ages for chondrites.

Richter F. M. *
Time Scales for Elemental and Isotopic Fractionation by Evaporation and Condensation **[#1231]**
The manner in which elemental and isotopic fractionations depend on the relative size of the time scales for evaporation, condensation, diffusion, and temperature change are explored.

Fedkin A. V. * Grossman L.
Magnesium and Silicon Isotopic Compositions Recorded During Simultaneous Crystallization and Evaporation of CMAS Droplets into Ambient Solar Gas **[#1803]**
The composition change of an evaporating droplet is strongly influenced by its fractional surface area of crystals. For crystallization during evaporation, the bulk isotopic composition of an element yields an underestimate of its fraction lost.