

Formation of Terrestrial Planets: The Basic Dynamical Model

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Time: Tuesday, December 18, 2012, 4:30 p.m.

**Venue: Lecture Theatre P3, Chong Yuet Ming Physics Building,
The University of Hong Kong**

Abstract:

In the standard scenario for solar system formation, planets form from a protoplanetary disk that consists of gas and dust. The formation scenario can be divided into three stages: (1) formation of planetesimals from dust, (2) formation of protoplanets from planetesimals, and (3) formation of planets from protoplanets. In stage (1), planetesimals form from dust through gravitational instability of a dust layer or coagulation of dust grains. Planetesimals are small building blocks of solid planets.

Planetesimals grow by mutual collisions to protoplanets or planetary embryos through runaway and oligarchic growth in stage (2). The final stage (3) depends on the type of planets. For terrestrial planets the final stage is giant impacts among protoplanets while sweeping residual planetesimals. In the present talk, I review the basic elementary processes of terrestrial planet formation, showing N-body simulations and discuss the origin of the diversity of terrestrial planets.

About the Speaker:

Prof. Eiichiro Kokubo is a professor in the Division of Theoretical Astronomy of the National Astronomical Observatory of Japan. He received his PhD from the University of Tokyo. He is an expert in the theory of the formation of planetary systems and is well known for discovering a phase of oligarchic growth in planet formation.



Physics colloquium series is organized to introduce cutting edge researches and new development in physics, designed to be suitable to graduate and undergraduate students, and also to scientists working on different fields. Each colloquium will generally start with an extensive introduction of the background of the field, followed by forefront research topics and results. The colloquium will serve as an education forum for students and laymen alike, and also serve as a platform for exchange and update their knowledge of various branches of physics among academic staff members.

Coffee and tea will be served 20 minutes prior to the colloquium
Anyone interested is welcome to attend