

開 講

科目：地球惑星科学特別講義CII
(1単位, 全7回)

講師：Ramon Brassler 東工大ELSI准教授

講義：「Problems and solutions
in modern planetary science」

日程：第3Q, 月曜 3・4限 (10:45 - 12:15)

[1] 9月25日(月)

[2] 10月2日(月)

[3] 10月23日(月)

[4] 10月30日(月)

[5] 11月6日(月)

[6] 11月13日(月)

[7] 11月27日(月) *

(* 都合により変更になる可能性あり)

講義言語：英語

内容：別紙のとおり

担当教員 中本

「Problems and solutions in modern planetary science」

Lecture 1: Overview of existing problems in planetary science.

This is an introductory class where I lay the foundation of things to come and explain some basic concepts.

Lecture 2: Relationship between dynamics and cosmochemistry.

Here I explain how understanding planet formation relies on data from cosmochemistry, and how the lack of samples severely limits what we can learn from exoplanets. It features a short intro to cosmochemistry.

Lecture 3: Terrestrial planet formation.

This class would consist of an overview of terrestrial planet formation and the stages through which this proceeds and how to test models from the meteorite data.

Lecture 3: Exoplanet formation.

This would have a similar flavour to Class 2 but now it focuses on exoplanet formation and its problems, in particular planet migration.

Lecture 4: Planetary spins.

In this class I will discuss the precession and nutation of planetary spins and introduce the chaotic obliquity variations of Mars. The effect of the spins on climate, such as repeated ice ages on the Earth caused by the Milankovic, will also be mentioned.

Lecture 5: Tides.

This class would introduce the students to tidal evolution in planets, mostly focused on rocky planets. The rotation rate and obliquity evolution are discussed as well, as well as a focus on Saturn's moon Enceladus.

Lecture 6: Exoplanet radius distribution.

In this class I will discuss the observed radius distribution of small exoplanets and how this is shaped by photoevaporation and what this tells us about their formation.

Lecture 7: Discussion.

This lecture is reserved for discussion of a topic that the students find interesting, and for discussion about projects. I will also touch on proposal writing for future endeavours.