



COLLÈGE  
DE FRANCE  
1530

# CHAIRE DE PHYSIQUE DE L'INTÉRIEUR DE LA TERRE

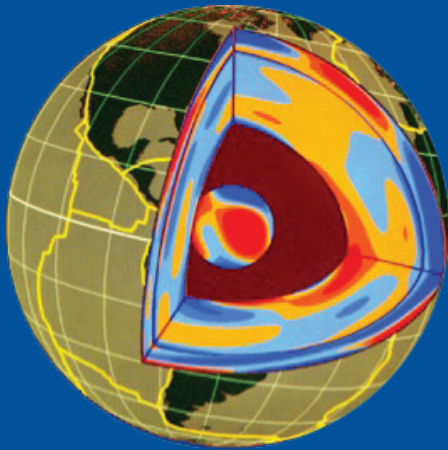
Année académique 2014-2015

Pr Barbara ROMANOWICZ

## Structure and Dynamics of Earth-like Planets

Colloque en anglais - Workshop in English  
Organisé avec Philippe Lognonné, IPGP

Jeudi 20 et vendredi 21 novembre 2014.  
Amphithéâtre Marguerite de Navarre.



### Thursday, November 20th, 2014

09h00 Introduction Barbara Romanowicz, IPG, Paris

#### Session 1: The Moon

Chair: Chloé Michaut, IPG, Paris

09h05 New Results from NASA's Lunar Gravity Mapping Mission GRAIL  
Mark Wieczorek, IPG, Paris

09h40 Moon Internal Structure from Apollo Seismic Data: a Corner Stone  
for Planetary Seismology  
Raphaël Garcia, Toulouse

10h15 Towards a Mineral Physics Reference Model for the Moon's Core  
Daniele Antonangeli, UPMC, Paris

10h50 Coffee Break

#### Session 2: Venus and Mercury

Chair: Jean-Paul Montagner, IPG, Paris

11h20 Dynamics of the tidally evolved planets in the Solar System :  
Mercury and Venus  
Jacques Laskar, Observatoire de Paris

11h55 Constraints on the Interior Dynamics of Venus  
Sue Smrekar, JPL, Pasadena, USA

12h30 Lunch

#### Session 3: Mars

Chair: Antoine Mocquet, University of Nantes

14h00 Volcanism on Mars and Early Oxidation of its Upper Mantle  
Bernard Wood, University of Oxford

14h35 Enigmatic Martian Mantle Reservoirs: Can Dynamic Models Help?  
Doris Breuer, DRL, Berlin

15h10 The InSight Mission: Exploring the Interior of Mars  
Bruce Banerdt, JPL, Pasadena, USA

15h45 Coffee Break

#### Session 4: Icy Moons and Rocky Exoplanets

Chair: Lapo Boschi, UPMC

16h10 Dynamics and Evolution of Jupiter's and Saturn's Icy Moons  
Gabriel Tobie, University of Nantes

16h50 Constraining the Interior Structure of Rocky Exoplanets:  
the Inverse Approach  
Caroline Dorn, University of Bern

17h15 Poster Session (rooms 7-8)

### Friday November 21st, 2014

#### Session 5: Planetary Dynamics

Chair: Anne Davaille, University Paris Sud, Orsay

09h00 Rotation and Interior of Terrestrial Planets  
Veronique Dehant, Observatoire Royal de Belgique

09h35 Observations and Geodynamic Interpretation of Rapid Plate Motion  
Variations  
Peter Bunge, University of Munich

10h10 Strain Dependent Strength Profiles: Implications for Planetary Tectonics  
Laurent Montesi, University of Maryland, USA

10h45 Coffee Break

#### Session 6: Planetary Composition and Mineralogy

Chair: James Badro, IPG, Paris

11h15 Planetary Accretion Models and the Mineralogy of Planetary Interiors  
Daniel Frost, University of Bayreuth

11h50 Transport in the Earth's Core  
Dario Alfe, University College, London

12h25 Lunch

#### Session 7: Dynamics of Planetary Cores

Chair: Julien Aubert, IPG, Paris

13h50 Magnetic Fields – a Window into the Deep Interior of Planets  
Ulrich Christensen, Max Planck Institute, Göttingen

14h25 Turbulence in Planetary Cores'  
Henri Claude Nataf, University Joseph Fourier, Grenoble

15h00 Coffee Break

#### Session 8: Dynamics of Planetary Cores II

Chair: Alexandre Fournier, IPG, Paris

15h30 Dynamics of Earth's Interior and Geodynamo  
Bruce Buffett, U.C. Berkeley, USA

16h10 Integrated Approach to Understanding the Composition and  
Dynamics of Planetary Cores  
Yingwei Fei, Geophysical Lab., Washington

16h40 Melting in Super-Earth Exoplanets  
Lars Stixrude, University College, London

17h00 Panel Discussion

Tilman Spohn, DLR, Berlin, Philippe Cardin, University Joseph-Fourier  
Grenoble, Philippe Lognonné, IPG, Paris, Stéphane Mazevet, Observatoire de  
Paris, Lars Stixrude, UCL, Barbara Romanowicz, Collège de France / IPG, Paris