平成２６年１０月

35604-1018 理論天文学特別講義Ⅷ（柴橋・Benomar）の開講について

(Theoretical Astronomy, Advanced Course Ⅷ)

下記の通り集中講義を行いますので、お知らせいたします。

天文学専攻

日時：11 月 12 日(水) 13:00～14:30,14:50～16:20
19 日(水) 13:00～14:30,14:50～16:20
26 日(水) 13:00～14:30,14:50～16:20
12 月 17 日(水) 13:00～14:30,14:50～16:20
場所：理学部 1 号館中央棟 10 階 1043 号室、
講師：Dr. Othman Benomar.
(Lectures and practical exercises are given in English)

授業の目標・概要：

After reviewing theory of stellar internal structure and evolution, we discuss recent progress in asteroseismology and physics of star.

授業計画：

1. Introduction to stellar physics (I)
- Stellar magnitude and luminosity
- Spectral classification of stars and relationship to temperature
2. Introduction to stellar physics (II)
- The HR diagram
- Hydrostatic equilibrium and stability
3. Spectral classification of stars (VIREO exercice)
4. Photoelectric photometry: Measure of distance of stellar clusters (VIREO)
5. Nuclear fusion
- Nuclear reaction rate
- Energy generation rate
- p-p chain reaction
- CNO cycle
6. Evolution from the pre-main sequence to main sequence
- Energy transport mechanisms
- Equation of structure
- Importance of nuclear reaction during evolution

7. Latest evolutionary phases
- What characterize the Subgiant, Red Giant and AGB phases?
- White dwarf and neutron star

8. Stellar oscillations
- Pulsation excitation mechanisms
- Wave propagation diagram (Cowling approximation)
- Pulsating stars and observed pulsations

9. Asteroseismology
- Measure of stellar pulsations
- Signal processing: Methods and Statistics

10. Asteroseismology: Examples
- Helioseismology
- Asteroseismology in the space era: CoRoT and Kepler space borne instruments
- Future of Asteroseismology: SONG, PLATO, TESS