SOKENDAI CampusPlan Web Service

Syllabus Reference

Course title	Cosmic Plasma Physics I		
Term	後期 2nd Half		
Credit(s)	2		
The main day		The main period	
School/Program	School of Physical Sciences		
Department/Program	Department of Astronomical Science		
Category	Common Base		
Lecturers			

Instructor

Full name
* KATSUKAWA YUKIO

Outline	The lecture will cover the atmospheric structure of the Sun and the dynamic plasma phenomena taking place there based on the basics of magneto-hydrodynamics describing the behavior of the hot plasma and observational results at various wavelengths.
Goal	The goal of the lecture is to learn the plasma phenomena taking place in the solar-stellar atmosphere, the basics of magneto-hydrodynamics, and the observational techniques to diagnose the phenomena.

Grading system

	Grading system
Grading system	01:Four-grade evaluation (A,B,C,D)

Grading policy	Students who attend at least 50% of the lectures will be evaluated on the basis of reports during the lectures (40%) and a final report (60%).
Lecture Plan	1. Overview of the solar-stellar atmospheres and active phenomena 2. Basics of magneto-hydrodynamics (MHD) 3. MHD wave and energy flux 4. Magnetic field in the photosphere and sunspots 5. Chromosphere and corona I 6. Chromosphere and corona II 7. Solar flares 8. Solar wind and space weather 9. Solar activity cycle and dynamo 10. Observing methods: solar spectrum and optical observations 11. Observing methods: basics of polarization 12. Observing methods: magnetic field diagnostics by polarization 13. Observing methods: UV and X-ray observations 14. Stellar magnetic activity and the sun as a star 15. Future observations
Location	Mitaka Campus, NAOJ
Language	Japanese or English (in case of non-Japanese students)
Textbooks and references	シリーズ現代の天文学「太陽」: T. Sakurai, M. Kojima, T. Kosugi, K. Shibata 総説宇宙天気: K. Shibata, Y. Kamide Magnetohydrodynamics of the Sun: E. Priest

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