Exoplanets

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Reception hours: 11-12 a.m. from Monday to Friday by appointment (please send an email to the above address)

Program of the course:

1. ***Introduction:*** A general view of the field and the key questions
2. ***Detection:*** The different observations techniques: Radial Velocities, Imaging, Transits, Microlenses, Timing, Astrometry. Methods; challenges; Results to date.
3. ***Census of exoplanets:*** distribution in mass and size, multiplanetary systems; orbits, eccentricity, rotation, abundances. Host stars.
4. **Planetary formation theories:** Terrestrial planet formation, Giant planet formation, Tidal effects, Population synthesis, Orbital migration
5. ***Exoplanet atmospheres:*** Observation techniques; hot, warm and temperate planets. Transmission and emission spectroscopy. Phase curves. The concept of habitability. Results to date.
6. **Facilities for exoplanets**: Present and future facilities from ground to space.

Bibliography:

[1] M. Perryman, *The Exoplanet Handbook*, 2018, 2nd edition, Cambridge Univ. Press
[2] C.A Haswell, Transiting Exoplanets, 2010, Cambridge Univ. Press
[3] K. Heng, Exoplanetary Atmospheres, 2017, Princeton University Press

Recent research papers will be suggested to cover specific topics of this rapidly evolving field.