

UTA Astrophysics Research Topics

- Theoretical modeling of stellar activity
- HST, ROSAT and Chandra observations of magnetic white dwarfs and solar-type stars
- Observation and analysis of star spots
- Extra-solar planetary systems
- Stellar habitable zones and astrobiology
- Orbital stability of terrestrial planets in these zones
- Supersymmetric particles and the origin of dark matter in the universe
- Physics of vacuum and the origin of dark energy

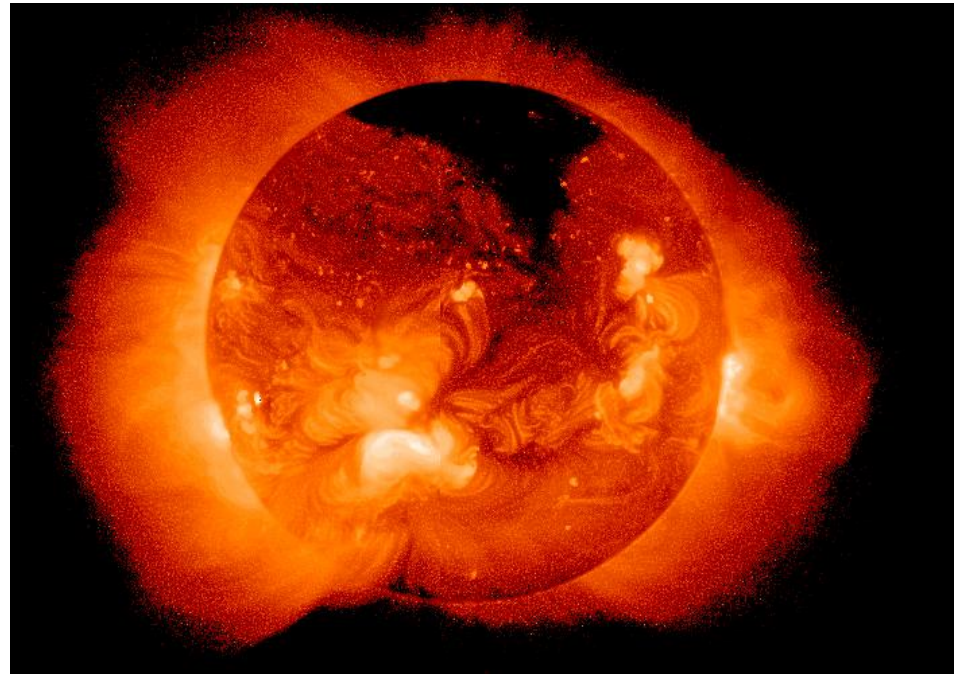
Stellar Activity (Theory)

- Studies of solar-stellar relationships
- Studies of magnetic processes in different types of star
- Modeling of heating and radiation in regions around stars
- Exploration of stellar winds and mass loss



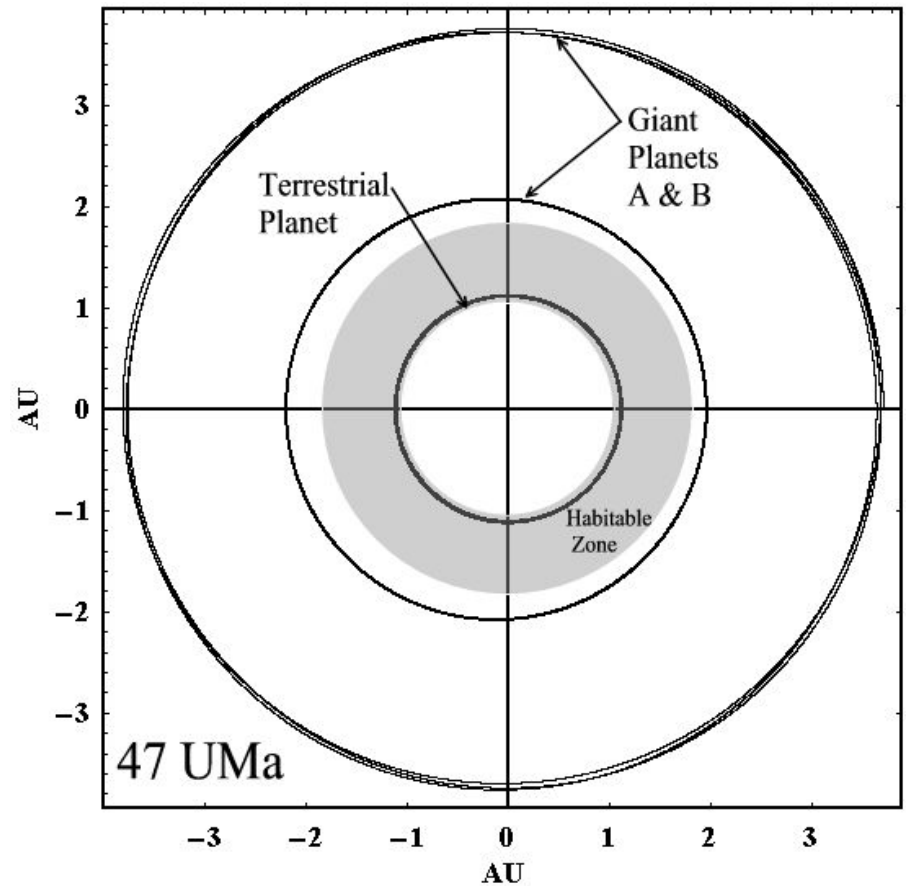
Stellar Activity (Observations)

- HST and Chandra observations of solar-type stars
- Observation and analysis of star spots in single stars and interacting binaries
- ROSAT and Chandra observations of white dwarfs



Extra-solar Planetary Systems

- Dynamics of different types of planetary systems
- Orbital stability of terrestrial planets
- Stellar habitable zones and astrobiology
- Planets in multiple star systems
- Case studies for 47UMa



Dark Matter and Dark Energy

- Supersymmetric particles and their role in explaining the origin of dark matter is investigated.
- Quantum field theory methods are used to study the physics of vacuum and its relevance to the origin of the cosmological constant and dark energy.

