

# Exoplanets: Ushering in the Era of Comparative Planetology

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The discovery of planets around other stars, which we call exoplanets, has emerged over the past two decades as a new, vibrant, fruitful field that spans the realms of astrophysics, planetary science, and even biology. The relevant body of observational evidence on exoplanets (~2000 discovered thus far) has been gathered primarily thanks to the systematic discovery of more and diverse planets through high precision radial velocities and the successful application of planetary transits both for planet discovery and planet characterization. The combination of high-quality astrophysical data with the significant body of models describing the physical structure and atmospheres of gas/ice giants and super Earths, all bearing upon proposed formation and dynamical evolution theories of planetary systems, is ushering us in the new era of ‘comparative planetology’. The most spectacular successes of planet detection and characterization programs, both from the ground and in space, will be reviewed, with a particular focus on the characterization of planets with masses similar to that of the Earth, the cutting-edge studies of exoplanets' interiors and atmospheric chemistry and dynamics, and the initial attempts at identifying a class of potentially habitable systems.

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