

## Microlensing Exoplanet detection using space based observations

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Tuesday

February 10

12:30 P.M.

Rm 184 NSH

I will start with a general overview of microlensing method and how it is used for detecting exoplanet systems and their properties. More than 50 planets are discovered with the different ground based telescopes available for microlensing. But the analysis of ground based data fails to provide a complete solution. To fulfill that, space based telescopes, like Hubble space telescope and Spitzer are used. My research work focuses on extracting the planet mass, host star mass, their separation and their distance in physical units from HST Follow-up observations. I will also talk about the challenges faced in developing this method. This is the primary method to be used for NASA's top priority project (according to 2009 decadal survey) Wide Field InfraRed Survey Telescope (WFIRST) Exoplanet microlensing space observatory, to be launched in 2024. The unique ability of microlensing is that with WFIRST it can detect sub-earth-mass planets beyond the reach of Kepler at separation 1 AU to infinity. This will provide us the statistics to study the formation and evolution of planetary systems.