

**Characterizing Lenses of Long Time-scale Caustic-crossing Binary-lens
Gravitational Microlensing Events**

Mr. Park Sun-young

Ms. Sua Song

sua0231@astroph.chungbuk.ac.kr

Chungbuk National University

Abstract: Among microlensing events, those produced by binaries with long time scale and caustic-crossing features are of special scientific importance because they provide a rare chance to fully characterize the physical parameters of lenses. We present the analysis of light curves of 4 such events discovered in 2011 microlensing observation season including MOA-2011-BLG-090, OGLE-2011-BLG-0307/MOA-2011-BLG-241, OGLE-2011-BLG-0417, and MOA-2011-BLG-358/OGLE-2011-BLG-1132. For all events, we measure the parallaxes and the Einstein radii of the lenses and thus determine the masses and distances to the lenses. We also point out that consideration of the orbital motion of the binary lens is important for the accurate measurement of the lens parallax and thus the physical parameters. For MOA-2011-BLG-090 and MOA-2011-BLG-358/OGLE-2011-BLG-1132, both lens components have masses of faint M dwarfs. This demonstrates that long time-scale caustic-crossing binary-lens events enable to study binaries composed of low-mass objects that are difficult to study by using other methods.