

# CAUSTIC CROSSING EVENTS AND SOURCE MODELS IN GRAVITATIONAL LENS SYSTEMS

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## S u m m a r y

High amplification events (HAEs) are common phenomena in extragalactic gravitational lens systems (GLSs), where the multiple images of a distant quasar are observed through a foreground galaxy. There is a considerable brightness magnification in one of the quasar images during HAE. Grieger, Kayser, and Refsdal (1988) proposed to use HAEs to study the central regions of quasars in GLSs. In this paper, we consider some problems concerning the identification of different source types on the basis of the HAE observations. We compare the results of light curve simulations to estimate a feasibility to distinguish different source models in GLSs. Analytic approximation methods yielding solutions of the lens equation in a vicinity of fold caustic crossing events are presented. The results are used to obtain amplification factors, which the higher-order corrections for the Gaussian, power-law, and limb-darkening models of a source take into account.