

Progress report

STUDY OF NARROW LINE REGION IN SEYFERT GALAXY Mrk 1066

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Mrk 1066 is a Seyfert galaxy with an extended narrow-line region (NLR) and a bipolar radio jet. HST images of nuclear part show jet-like structure in the narrow-band filters in that emission lines [OIII] and $H_\alpha + [NII]$ are included. In H_α and [NII], jet is observed on both sides of the nucleus while [OIII]-emitting gas is concentrated into a bright narrow structure extending $1.4''$ NW of the nucleus. We present a detailed study of this galaxy using 3D spectroscopy data taken on the SAO RAS 6-m telescope. We analyse simultaneously the kinematics and ionization state of the gas and check the role of shocks in the formation of the NLR.

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GRAVITATIONAL LENSING: FROM MICRO TO NANO

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We discuss different regimes of gravitational lensing depending on gravitational lens masses, in particular, mass scale M_\odot corresponds to micro, mass scale $M_\odot 10^{-6}$ corresponds to nano regimes respectively. Therefore, detections of observational features of gravitational (nano-)lensing provide an opportunity to discover objects with Earth and (sub-) Earth masses. We discuss a possibility to discover a low mass planet in Andromeda galaxy with pixel-lensing. Thus, at the moment, gravitational lensing is the only way to find low mass exoplanets in other galaxies. We note an importance to introduce new selection criteria including temporal variability features for continuum and spectral lines to analyze event candidates in details.