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SPECTROSCOPY

Summary of paper :
"Optical Spectroscopy of Four Young Radio Sources"

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The paper which I summarized is scpecific in the way that it studied young radio sources in the range of Optical spectra.It has a strong interest in the earliest stages in the evolution of the powerful radio galaxies. It suggested that NLS1s(narrow-line Seyfert 1 galaxies) are to be during early stage of the accretion activities . Then, it talks about the common Optical properties of NLS1s and young radio sources that are observed with the Lijiang 2.4m telescope .By analysing the emission lines properties , outflow which is originated from the disk wind or galactic wind can be explaned and we can also see that The Eddington ratios of these sources are similar with those of narrow-line Seyfert 1 galaxies.

Implementations are made with several basic materials in spectroscopy such as Telescope (the Lijiang 2.4m telescope), detector,Cameras(Yunnan Faint Object Spectrograph and Camera) which works in both imaging and spectroscopy modes. Talking about method,The spectra were taken with two gratings then they are reduced with the standard IRAF routines.The algorithm of HU et Al is used and the emission lines are fitted using Gaussian profiles or Gauss - Hermite function. The study focused only on the Hβ and MgII region. Also, spectra are flux calibrated with the spectrophotometric flux of standard stars observed at a similar air mass on the same night and the spectral resolution is estimated using the FWHM of the sky emission lines. Hβ and MgII are treated as a broad component.It was noticed that luminosity is calculated using a ΛCDM cosmology model.

The results show that the broad Hβ has the same blueshift with the blueshifted [OIII] doublet.Features confirm that the emission lines properties of young radio sources are similar with NLS1s, except that the line width of young radio sources is broader than that of NLS1s. The estimated black hole mass is also larger than the average value of NLS1s. Then, the paper suggest that the young radio sources are the high mass counterparts of the steep-spectrum radio-loud NLS1s.