

Invited Lecture

**POLARIZATION IN BROAD EMISSION LINES OF
ACTIVE GALACTIC NUCLEI**

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Active Galactic Nuclei (AGNs) are one of the most powerful sources in the Universe. AGNs are emitting broad emission lines (BELs), which are coming from the broad line region (BLR) that is close to the supermassive black hole (SMBH) assumed to reside in the center of these objects. The BEL shapes can indicate the emission gas dynamics and are thus used to investigate the BLR characteristics, but moreover they can be used to determine the SMBH mass. Polarization in BELs depends on the geometry of the BLR, but also on the polarization mechanism. The polarization rate and angle across the line profile can be used to measure the SMBH mass, and constrain the BLR characteristics. Here we give an overview of our recent investigations of the polarization in BELs from both aspects: theoretical and observational. This lecture is devoted to Victor L. Afanasiev, who led the observational part of these investigations and who sadly passed away at the end of 2020.