

Transient double-peaked line emission as signatures of accretion events around supermassive black holes

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We discuss the recent appearance of very broad (FWZI ~ 20000 km s⁻¹) double-peaked Balmer emission lines in the nuclei of the galaxies NGC 1097, Pictor A and M 81. Such profiles are rare, and only found in about 10% of broad-line radio galaxies. In the most accepted scenario, they are the signature of relativistic gas motions around a supermassive nuclear black hole. We make a parallel between the properties of the above three nuclei: while Pictor A is a radio-galaxy similar to the others where the double-peaked profile is found, NGC 1097 and M 81 are low-luminosity nuclei located in spiral hosts. The latter galaxies nevertheless share the key characteristics of more powerful radio galaxies with double-peaked lines: narrow emission-line ratios typical of LINERs, double-peaked Balmer lines which are on average twice as broad as those of typical radio loud AGN and the presence of jets. These properties suggest that low-luminosity LINERs harbor similar nuclear engines as the most luminous a