The central black hole masses of radio-loud quasars

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The energy released from the accretion process upon central black holes is believed to power the quasars. In such scenario, the black hole mass is one of the most important physical quantity. The radio-loud quasars are characteristic of powerful radio jets, and the jets are probably powered by the rotating black hole, or accelerated by the magnetic field of the accretion disc. We performed a study for a sample of 86 radio-loud quasars for further understanding the relationships between the black hole masses and radio activities. The central black-hole masses of radio-loud quasars are estimated by using the data of Hβ line-width and the optical continuum luminosity. We found the vast majority of the quasars in this sample have black-hole masses higher than 10^8 M_{sun}, while a few quasars may contain relatively smaller black-holes $< 10^8$ M_{sun}. Our results are confirmed by a recent research on PHFS. There are a tendency of the radio luminosity increasing with the central black hole mass. We found a significant anti-correlation between radio-loudness and the central black-hole mass. It might imply that the jet formation is related with the black-hole mass.