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Synchrotron radio emission in radio-quiet AGNs

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(Submitted on 27 Oct 2010)

The basic mechanism responsible for radio emission in radio-loud active galactic nuclei (AGNs) is assumed to be synchrotron radiation. We suggest here that radio emission in radio-quiet objects is also due to synchrotron radiation of particles accelerated in shocks. We consider generic shocks and study the resulting synchrotron properties. We estimate the synchrotron radio luminosity and compare it with the X-ray component produced by inverse Compton emission. We obtain that the radio to X-ray luminosity ratio is much smaller than unity, with values typical of radio-quiet sources. The predicted trends on source parameters, black hole mass and accretion rate, may account for the anticorrelation between radio-loudness and Eddington ratio observed in different AGN samples.

Comments: 5 pages, accepted for publication in Astronomy and Astrophysics

Subjects: **High Energy Astrophysical Phenomena (astro-ph.HE)**; Galaxy Astrophysics (astro-ph.GA)

Cite as: [arXiv:1010.5591v1](https://arxiv.org/abs/1010.5591v1) [astro-ph.HE]

Submission history

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[v1] Wed, 27 Oct 2010 07:45:30 GMT (41kb)

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