INTRODUCTION

The production of X-rays in blazars (radio-loud AGNs with jets pointing at or close to the line of sight), is associated with jets. In High Energy Peakd BL Lac (HBL), the X-rays are produced by synchrotron emission. In Low Energy Peakd BL Lac (LBL) - the X-rays are produced by Comptonization of the synchrotron radiation (SSC). Finally in Flat Spectrum Radio Quasars (FSRQ) - X-ray emission can be produced by the SSC radiation and/or the so-called external radiation Comptonization (ERC) process, that is, Compton scattering of the photons external to the jet. External photons can come: directly from the accretion disk (Dermer & Schlickeiser 1993); from the broad line region (BLR) (Sikora, Begelman & Rees 1994), and from hot dust as thermal IR radiation (Blazejowski et al. 2000).

The luminosity of FSRQs is dominated by GeV radiation ("GeV-Blazars"). However, there is a subclass of FSRQs with the luminosity peaked in the MeV band ("MeV-Blazars"). A possible explanation for this division could be related to the location of the radiation site in the jet: in GeV-Blazars radiation is produced closer to the central black hole (where BLR play dominant role as the source photons in ERC process), while in MeV-Blazars, the active region is significantly further from the center (in this case thermal IR photons play the crucial role in Compton scattering: see Sikora et al. 2002).

CHANDRA OBSERVATIONS

PKS 0458-020

- PKS 0458-020 is a z=2.29, γ-loud blazar (Thompson et al. 1995);
- The overall SED is dominated by γ-ray emission (≈ 10^{38} erg/sec) peaking @ few GeV;
- PKS 0458-020 has the pronounced UV-bump (Pet et al. 1991);
- The X-rays observed by Chandra, reveals slightly softer (α_{X} ≈ 0.4) spectrum in comparison to GB 1508+5714 (Bechtold et al. 2003);
- PKS 0458-020 shows similar features to GeV-Blazars.

GB 1508+5714

- GB 1508+5714 is the first z > 4 radio-selected quasar to be detected in X-rays (Mathur & Elvis 1995);
- It is very X-ray luminous (≈ 10^{47} erg/s);
- Mathur & Elvis (1995) and Moran & Helfand (1997) argue that this luminosity is partially due to beaming;
- It shows significant variations in radio band (Frey et al. 1997, Moran & Helfand 1997);
- Its optical spectrum is dominated by strong UV bump (Moran et al. 1996);
- Chandra observations show very high spectrum consistent with the previous ASCA data (Siemiginowska et al. 2003, Moran & Helfand 1997), but lower flux;
- Here we model GB1508+5714 broadband radiation in terms of the MeV-Blazar phenomenon.

GB 1508+5714 is the first of a new, high-redshift quasars. Small optical to X-ray flux ratios characterized by α_{X} ≈ (1.0) parameter suggest that the X-rays result from beamed, nonthermal radiation. We model the X-ray emission in terms of blazar phenomenon, e.g. the IR and BEL emission is being Compton scattered off relativistic particles in the parsec scale jet. We discuss basic model assumptions appropriate for modeling the two high z quasars: GB 1508+5714 (z = 1.3) and PKS 0458-020 (z = 2.29).

REFERENCES

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SUMMARY & CONCLUSIONS

- We successfully model the broadband spectra of both quasars with the parsec scale jet model;
- The main difference between two sources is related to the difference in the distance between the acceleration (shock) region from the central black hole and the source of the seed photons in Compton scattering process;
- GB 1508-5714 has the X-ray properties of MeV-Blazars, while PKS 0458-020 is a GeV-Blazar.