High-energy processes in accretion disk coronae

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Accretion disks around compact objects are known as X- and Gamma-ray emitters. The non-thermal radiation is likely produced in a hot corona associated with the accretion disk. As in the solar corona energetic particles can be accelerated at different sites and radiate efficiently. To investigate the different spectral states observed in these objects we have developed a numerical tool that dynamically couple energetic leptons (electron/positron), photons and magneto-hydrodynamic slab-type waves plus a thermal population of protons. We present here the first results of this code adapted to the conditions that prevail around galactic black holes.