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Gamma-rays from thermal x-ray composites

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There are about 300 supernova remnants (SNRs) observed in our Galaxy. They evolve in interstellar medium which is not uniform. SNRs may be classified into a few morphological classes, based on their surface brightness morphologies in different photon energy ranges: shell-like (both in radio and X-rays), centrally-filled (as in radio as in X-rays), thermal X-ray composites (TXCs). The last class often called also mixed morphology SNRs and contains objects which are shell-like in radio and centrally filled in X-rays (which are of the thermal nature). One of the model for the origin of such morphology is interaction of SNRs with dense molecular cloud located on the line of sight. If so then TXCs have to be sources of hadronic gamma-rays. In our talk we explore this idea by performing the 3D MHD simulations of SNRs in a medium with strong gradients of density and magnetic field and synthesizing images of TXCs in different bands from radio- to gamma-rays.

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