

GAMMA-RAY EMISSION FROM SN 1006 DUE TO ACCELERATED COSMIC RAYS

E. G. Berezhko (1), **L. T. Ksenofontov** (1) and H. J. Völk (2)

(1) Institute of Cosmophysical Research and Aeronomy, 31 Lenin Ave., 677891, Yakutsk, Russia, (2) Max-Planck-Institut für Kernphysik, Heidelberg, D-69117 Germany.

The kinetic nonlinear model of cosmic ray (CR) acceleration in supernova remnants (SNRs) has been used to describe the relevant properties of the remnant of SN 1006. The calculated expansion law and the radio-, X-ray, and γ -ray emission produced by accelerated CRs agree quite well with the observations. This assumes Bohm diffusion in an upstream magnetic field of $20 \mu\text{G}$, as well as a flux renormalisation by a factor of 5. The π^0 -decay TeV γ -rays, generated by the nuclear component, dominate over the IC γ -rays, generated by the electron component in the cosmic microwave background. The predicted integral γ -ray flux $F_\gamma \propto \epsilon_\gamma^{-1}$ extends up to energies of $\epsilon_\gamma^{max} \sim 100 \text{ TeV}$ in the Bohm limit.