

THE TRANSPORT AND ACCELERATION OF TEST PARTICLES IN HYDRODYNAMICAL SIMULATIONS

P. Duffy (1), L. Ball (2) and V. Dwarkadas (3)

(1) Department of Mathematical Physics, U.C.D., Dublin 4, Ireland, (2) School of Physics, University of Sydney, NSW 2006, Australia, (3) Bartol Research Institute, University of Delaware, Newark, DE 19716, USA.

The interaction of supernovae with their surroundings has been studied with hydrodynamical codes. These codes capture the shock waves which arise when the ejecta interacts with the medium close to the progenitor star. Observationally it is known that core-collapse supernovae, of which SN1987A and SN1993J are the best studied examples, emit non-thermal radiation which is associated with these shock waves. We present a model for studying the transport and acceleration of test particles in hydrodynamical simulations of young radio supernovae and make initial comparisons with the radio data.