1033-35-38 **V D Sharma*** (vsharma@math.iitb.ac.in), Professor, Department of Mathematics, I I T Bombay, Powai, Mumbai, Mumbai, 400076, India. *Quasilinear hyperbolic system of partial differential equations and the associated wave interaction phenomena.* Preliminary report.

An asymptotic method for finding small amplitude high frequency wave solutions is employed; this reduces the governing system to simple evolutionary equations or systems with genuine nonlinearity. Asymptotic decay laws for weak shocks are obtained; as an application, a relaxing gas model is analyzed using the methods of relatively undistorted waves and nonlinear geometrical acoustic; effects of relaxation and wave front curvature on the distortion, attenuation and shock formation are described, and a comparision is made with the existing results. Evolutionary behaviour of shocks of arbitrary strength is examined, and in the limit of a weak shock, an exact description is recovered. (Received August 17, 2007)