CHEMISTRY IN PREGALACTIC SHOCKS: A STATE-TO-STATE APPROACH

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Shocks in pristine composition gas can held to cloud collapse and eventually to star formation. An accurate description of the chemical pathways for the formation and destruction of several species is necessary to catch the heat transfer phenomena and as a consequence the physics of the collapse itself. The chemistry of such physical conditions will be described, together with the cooling mechanisms enhancing the density growth and the temperature decrease. Non-equilibrium distribution functions for the internal degrees of freedom of the most relevant molecules will be described according to the results of state-resolved chemical kinetics.