Gas phase chemical kinetics: experimental advances and prospects

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A major aim of astrochemistry is to determine the nature and abundance of molecules observed or suspected to be present in the interstellar medium. This necessitates the spectroscopic identification of the species as well as the construction of chemical models including large networks of elementary chemical and some physical processes. Experimental and theoretical efforts are needed to obtain the information about these processes which is required as input to the models. Of primary importance are the coefficients which describe the rate of all the elementary processes in the model, as well as the products of these processes.

In this contribution I will present recent advances and perspectives in the field of experimental kinetics that allow to determine: (i) the rate of various collisional processes of astrophysical interest over a wide range of temperatures, (ii) the nature of the products resulting from these collisions with, in some cases, complementary information such as their internal energy distribution or branching ratios of the major exit channels.