# THE CHEMICAL VIEWPOINT ON GASEOUS DETONATIONS

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Of course, if the chemical events in combustion were noticed right at the beginning of the discovery of detonation phenomena (black powder, explosive nitro-compounds, hazards in coal mines), the connection between chemical conversion and the detonation process was suggested only at the end of the nineteenth century by Le Chatellier, Berthelot and Michelson among others.

It is at the turn of the $20^{th}$ century that a thermodynamic approach of shock waves provided a satisfactory approach of the explosion. process.
But, at that time the chemical process was poorly investigated.

During the years 1930s and 1940s in Russia Zel'dovich et al. recognized the heat release rate as the ultimate source of energy to propagate gas detonations. After that time the gasdynamics of detonation (2D,3D)obscured somehow the chemical description of explosive events, but provided a detailed understanding of the phenomena.

Only around 1970 the influence of chemistry conversion came back to the fore, first by studying the influences of additives and then by surveying non-traditional systems ($N_3H$ decomposition, and detonation in mixtures with $NO_2$ as an oxidizer).

The repercussion of the chemistry conversion on the structure and the self-sustenance mechanism will be discussed.