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	Nota di contenuto	Introduction -- Experimental Approach 35 -- Numerical Approach -- Laminar flame speed of lean premixed H2/CO/air flames 71 -- Extinction limit of lean premixed H2/CO/air flames -- Lower flammability limit of H2/CO mixtures -- Dilution effect on the propagation and extinction of lean premixed syngas/air flames 139 -- Conclusion and recommendation -- Nomenclature.
	Sommario/riassunto	This thesis presents pioneering experimental and numerical studies on three aspects of the combustion characteristics of lean premixed syngas/air flames, namely the laminar flame speed, extinction limit and flammability limit. It illustrates a new extinction exponent concept, which enriches the combustion theory. Above all, the book provides the following: a) a series of carefully measured data and theoretical analyses to reveal the intrinsic mechanisms of the fuel composition effect on the propagation and extinction of lean syngas/air flames; b) a

mixing model and correlation to predict the laminar flame speed of multi-component syngas fuels, intended for engineering computations; c) a new "extinction exponent" concept to describe the critical effects of chemical kinetics on the extinction of lean premixed syngas/air flames; and d) the effects and mechanism of the dilution of incombustible components on lean premixed syngas/air flames and the preferential importance among the thermal, chemical and diffusion effects.