

Combustion research perspective at PUC-RIO

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Understanding and controlling combustion processes is crucial to any society. Indeed, 85% of the energy produced and virtually all the gaseous pollutants stem from such processes. This lecture will initially provide an overview of the combustion community in Brazil and its place in the world. Then, recent results from three research topics studied at PUC-Rio will be presented.

First, the interplay between soot and polycyclic aromatic hydrocarbons distributions in laminar diffusion flames will be explored. Then, turbulent sooting combustion experimental results will evidence the existence of a cascade process which seems to control the soot intermittency. Finally, a seemingly simple but overlooked issue, i.e., the thermochemical non equilibrium affecting hydrocarbon/air detailed chemical mechanisms under rich burning conditions will be detailed.

