



# Carbon 2017

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**Abstract Book**

## Features Soot and Nanomaterials Formation in Coaxial Flame

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Soot of various modification is widespread material to create composites. At the same time structure and properties of soot particles depends on the method of synthesis, also of the starting fuel components and technological synthesis conditions. One of the promising methods of producing carbon black is process of synthesis at hydrocarbons combustion. Currently, research related to nucleation and growth of the carbon product in the flame indicate that their formation does not occur instantaneously, but through a sequence of elementary reactions between short-lived intermediate particles (radicals, ions, etc.). From the above, the composition, structure and properties of the final combustion products formed in the flame will depend on the of concentrational density and of the combination of the nature of the intermediate particles. These parameters are specific to a particular type of fuel, depending on its chemical composition. We propose to organize the simultaneous coaxial burning different fuels, when the initial flames burning phase for different kinds of fuels takes place on an individual basis, with the further association of flames at a certain height from the burner to form separate a combined of the reaction zone. This condition is allows to the predetermine the structure of soot particles and other nano-materials in the process of their formation, by changes in the combined reaction zone coaxial flame concentrational density and composition of intermediate species by the selection of fuels. In the present work we investigated in the coaxial flame of the soot formation process with predetermined properties and carbon nanomaterials.