THE ROLE OF PRECURSOR SOOT IN THE PRODUCTION OF SOOT AND FULLERENES

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Precursor soot is a condensed form of hydrocarbon that converts into mature (black) soot upon dehydrogenation. The very existence of this material has been shrouded in controversy for the past fifty years. The chemical and physical properties of this substance are quite remarkable and are the cause of many inconsistent interpretations of experimental data gathered on the soot production process. In this seminar, the chemistry of precursor soot will be revealed along with a realistic model for soot production. Consequently, many of the errors in interpretation and modeling of the soot formation data and process will also be revealed. Soot-free production of C_{60} from precursor soot will be demonstrated. Finally, the chemistry of precursor soot will be applied to make sense out of the chemical vapor deposition process for the production of carbon nanotubes.

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