Functional polymeric coatings by initiated chemical vapor deposition process

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Recently, a new vapor-phase deposition process, named initiated chemical vapor deposition (iCVD) resulted in the synthesis of polymeric films displaying full retention of the organic functional groups present in the monomeric reactants. For iCVD, a volatile initiating agent is introduced along with the gaseous monomers. The initiator decomposes easily by low power activation with either a hot filament or ultraviolet (UV) irradiation. With this solvent-free process, a number of functional films including biocompatible, functionalizable, superhydrophobic polymeric films were successfully fabricated and demonstrated. In this presentation, we will review the advantages of the iCVD process, and explore its utility and future directions and prospects in device applications.