

Initiated chemical vapor deposition of tailored polymer thin films for electronic applications

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Device miniaturization and the consequent need for new thin film materials on the nanoscale is a current trend in electronic devices in research as well as industrial production lines. The solvent-free, single-step initiated chemical vapor deposition (iCVD) process combines the advantages of CVD with organic chemistry and enables the fabrication of tailored polymer thin films on the nanoscale on complex geometries and large-area substrates. The talk presents results from fundamental studies on the process to advanced electronic devices. These range from sensors and generators to soft robotics. With the help of additional computational ab-initio approaches, the properties of the thin films can be tailored on the molecular scale. It turns out that the process provides new pathways for electronic applications requiring precise film thickness control and high film quality.