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Multi-scale structuring of polymer materials by reactive extrusion

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In this talk, we will report on reactive extrusion's ability to structure polymers over a wide range of scales:

* Atomic/chain segmental scale: 0.1 to 1 nm.

* Chain scale: 1 to 10 nm

* Nanometer scale: 10 to 100 nm

* Micrometer scale: 0.1 to 100 μ m.

Recent examples will be given to show how polymers can be structured at all these scales by reactive extrusion. They include functionalization of PP with unsaturated reactive monomers (atomic scale structuring), synthesis of PP and poly(lactam) graft copolymers by anionic polymerization (chain scale structuring) and preparation of PP and poly(lactam) nano-blends by (nanometer scale structuring) and micro-blends by in-situ polymerization and in-situ compatibilization.

References:

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