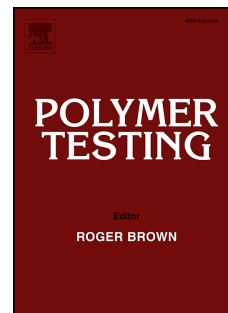


# Accepted Manuscript

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# Self-reinforcing and toughening isotactic polypropylene via melt sequential injection molding

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**ABSTRACT:** Polymer material exhibits a trade-off between toughness and stiffness, therefore, it remains difficult to develop a strategy that simultaneously realizes improved mechanical strength and toughness. Inspired by the bamboo-like structure, an efficient and simple melt sequential injection molding is proposed to fabricate a controllable skin-core structure of iPP samples with self-reinforcement and toughness. With increasing the melt injection number, the shear layers containing shish-kebabs are progressively thickened, resulting in an effective improvement of mechanical properties. The tensile strength increased from 35.1 to 55.3 MPa for the melt injection number from one to four,

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