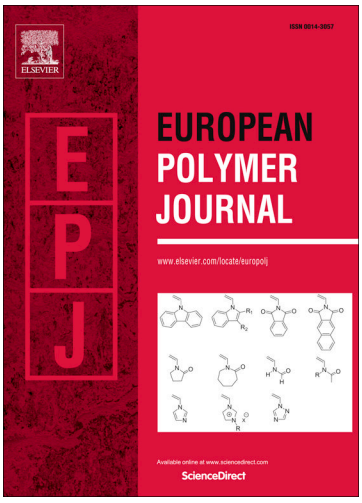

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Donor-Acceptor Type Helical Polyisocyanide Bearing Carbazole as the Pendant Groups for Nonvolatile Memory Effect

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Abstract

A highly soluble novel helical polyisocyanide bearing carbazole as the pendant groups (PECIC) has been synthesized via a nicked catalyzed polymerization reaction of 9-ethyl-3-isocyanocarbazole. The PECIC-based electronic device (Al/PECIC/ITO), in which holes dominate the conduct process, exhibits a typical nonvolatile WORM memory performance under an external electric field. By using in-situ C-AFM technique, its conductive nature was studied.

Highlights

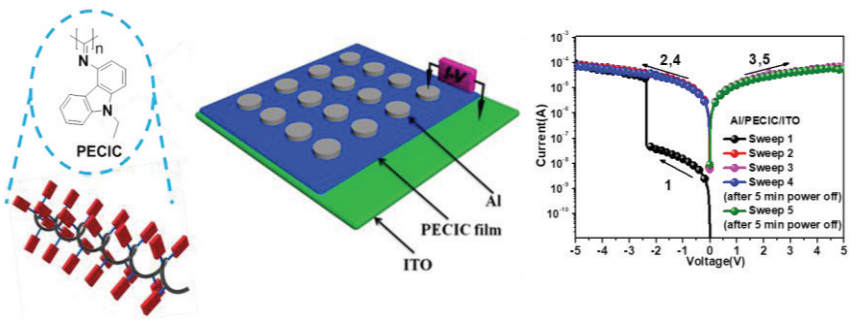
D-A type helical polyisocyanide was synthesized for polymer memory.

The fabricated device exhibits nonvolatile WORM memory performance.

A higher ON/OFF current ratio was achieved after the annealing treament.

The conductive nature was reflected by C-AFM technique.

Graphical abstract



Key words: Polyisocyanide; carbazole; helical structure; polymer memory; charge transfer;