

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202241064809 A

(19) INDIA

(22) Date of filing of Application :11/11/2022

(43) Publication Date : 25/11/2022

(54) Title of the invention : A NANOSTRUCTURED UNIDIRECTIONALLY CONDUCTING POLYMER

(51) International classification :C08F0293000000, C12N0009220000, C09D0153000000, C08G0061080000, C08L0065000000

(86) International Application No Filing Date :PCT// :01/01/1900

(87) International Publication No : NA

(61) Patent of Addition to Application Number Filing Date :NA :NA

(62) Divisional to Application Number Filing Date :NA :NA

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(57) Abstract :

The present invention relates to the field of nanostructures. The invention more particularly relates to a nanostructured unidirectionally conducting polymer comprises: a plurality of polymerized monomers to form a conducting polymer by utilizing a polybasic acid as a dopant and a crosslinking agent; and a phase separable segmented (co)polymer wherein at least one segment comprises a donor segment that forms a complex with an added conducting polymer or a conducting polymer precursor; wherein the first phase separable segmented polymer comprising a donor segment is one of a linear block copolymer, star copolymer, graft copolymer, bottlebrush copolymer or a brush copolymer tethered to a substrate.

No. of Pages : 15 No. of Claims : 6