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EFUS-A2

PREPARATION OF ELECTROCONDUCTIVE TEXTILES BASED ON A MOLECULAR TEMPLATING PROCESS.
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The widespread interest in the development of conducting fabrics is due to the anticipated lead role these materials will have in the next generation of smart textiles. It is expected that these textiles will have new functionalities, including the potential to detect and respond to changes in their environment or to external stimuli. However, present techniques for producing electroconductive textiles are unable to deliver high levels of electronic functionality and still maintain the key textile properties of the fabric. A novel method has been developed, based on a molecular templating process, for the preparation of electroconductive textiles which allows for the more seamless integration of electronic functionality. This technique enables a degree of control on the level of conductivity introduced and provides improved stability to the ICPs incorporated into the textile. This process utilizes conventional ICPs which are polymerized in the presence of a polymeric molecular template which stabilizes the conducting polymer and binds the systems to the fibres in the conventional textile structure. The molecular templating method using polymerization of ICPs in the presence of the molecular template, poly(2-methoxyaniline-5-sulfonic acid) and the properties of the textiles will be discussed. The conductivity of the textiles was found to be influenced by factors such as pH, temperature and reagent concentration during the polymerization of the ICP.

EFUS-A3

LIGHT AMPLIFICATION, LASING, AND FREQUENCY UPCONVERSION IN LUMINESCENT POLYMER OPTICAL FIBERS
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Compact, light weight, inexpensive coherent light sources operating in the visible region of the spectrum are desired for use in such diverse applications as communications, medical diagnostics, surgery, high-capacity optical data storage, and high-resolution scanning and printing. Although short wavelength laser diode technologies based on materials systems such as GaN are existent and progressing rapidly, they currently offer limited output power scalability and colour tunability. Therefore, the need for an efficient and inexpensive