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Bipolar organic semiconductors for thermoelectric power generation

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Conducting biopolymer membrane, which were made by bovine skin collagen doped with metal (Pt,WC). Collagen has great potential in the field of biomaterials. It is a major structural component of connective tissues. Collagen has a unique structure size and amino acid sequence. The collagen molecule consists of three polypeptide chains twined around one another as in a three-stranded rope. Each chain has an individual twist in the opposite directions. The principle feature that affects helix formation is the high content of glycine and amino acid residues. The strands are held together primarily by hydrogen bonds between adjacent-co and –H groups and also by covalent bonds. It has important applications in prosthesis, artificial tissue, drug carrier and cosmetics. Collagen is a biodegradable, biocompatible, non-toxic and low cost polymer, which shows many interesting properties, such as wound healing, ion-exchange ability and absorption of metal ion. An application of biopolymers in electrical devices is not only interesting but also essential for environmental safety. Collagen is a biomaterial as well as nanowire. The collagen based thin films are responding with electrical conductivity. Collagen biopolymers conducting material by doping with molecular charge of donors and acceptors (metal catalyst) and characterizing the nature of the optical band formation and also preliminarily investigation of its electronic transport properties, such as electron hopping and surface morphology.

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