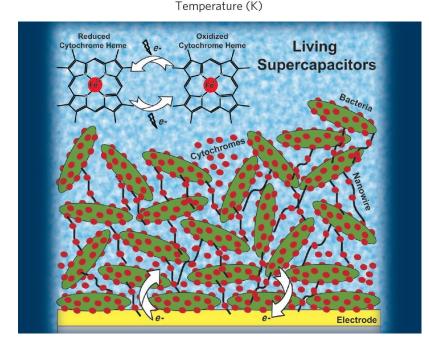
A Natural Route to Nanowires and Energy Storage

Organic electronics is a burgeoning area, with a growing range of applications. This new research - in which nanowires are grown naturally rather then synthesized chemically – may provide new methods for biologically-produced or biologicallyinspired materials for sustainable nanomanufacturing. Pilin nanofilaments (pili) — known now as "microbial nanowires" — are a class of fibrous proteins found in the sediment bacteria Geobacter. Temperature studies find metallic characteristics. The conductivity be can modulated by doping or by using an applied electrochemical voltage in an transistor configuration, showing the potential for device applications, including supercapacitors for energy storage.

104 а Biofilm 103 Pili filaments Conductivity (μ S cm⁻¹) 10² 10¹ 100 10-1 10-2 10-3 10^{-4} 10^{-5} 210 220 200 230 240 250 260 270 280 290 300



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