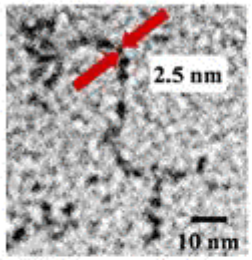
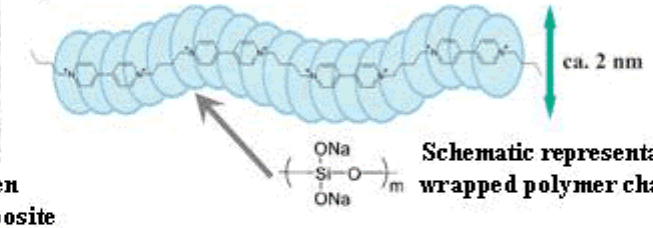
Wrapping of Individual Polymer Chain

A "molecular wrapping" technique for encapsulating individual polymer chains or bio-macromolecules was developed. The substrate polymer wrapped with ultrathin metal oxide layer is physically isolated from the surrounding environment and is expected to show the features of single molecule. The wrapping technique makes it possible to change the usual polymers into completely new materials. This technique is also useful for visualizing isolated amylopectin and cytochrome c molecules.

Wrapping Individual Chains of a Viologen Polymer with an Ultrathin Silicate Sheath

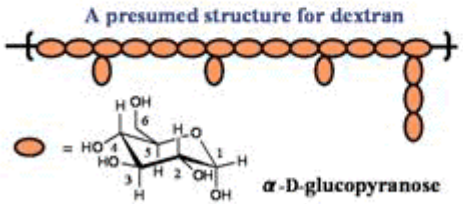


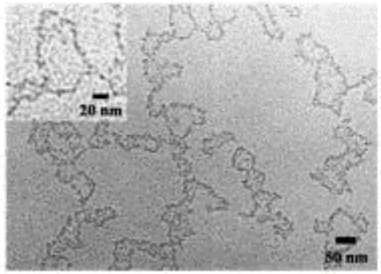
TEM image of viologen polymer-silicate composite



Schematic representation of a wrapped polymer chain.

Wrapping Bio-macromolecules with Ultrathin Silicate Layer





Structure of dextran chain and TEM image of dextran wrapped with ultrathin silicate layer.