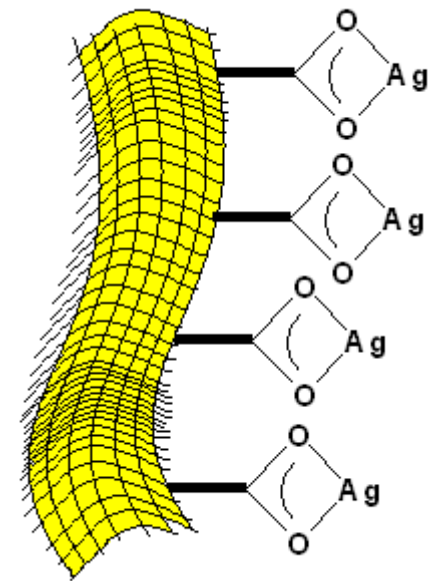
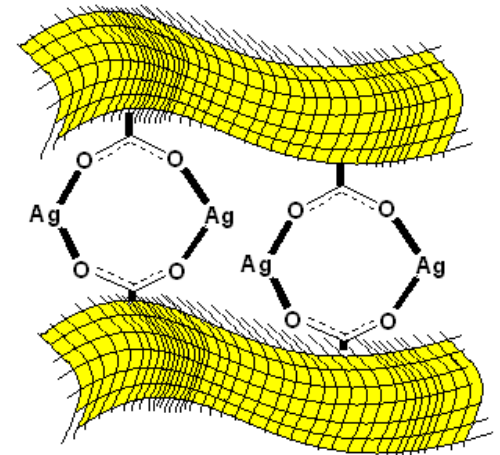


Polyamic acid motifs facilitate intra and intra-molecular cross linking in flexible membranes

In 2001, Sadik and co-workers reported that photochemical polymerization of conducting polymers (CPs) could be used to produce regularly-arranged metal nanoparticles in 5-100 nm range using salts of Group 1B metal ions (first reference below). Subsequently Sadik and others reported the fabrication of the first nanostructured polyamic acid (PAA) membranes containing free carboxylic acid and amide functionalities (Reference 2 below). More recently, they have shown that these functional groups act as molecular anchors in the formation of PAA- gold-silicone copolymers (reference 3). The figures show how the PAA motifs facilitate the formation of nanoparticle-induced inter(top) and intra (bottom) molecular cross-linking in flexible membranes.

These polymers could be specifically tailored for catalytic reduction of toxic metals, environmental sensing, and/or patterning of cells, tissues, and neurons in flexible electronics.



- 1) Breimer M., Sy S., Gelfand Y., Sadik O. A., Incorporation of metal nanoparticles in photopolymerized organic conducting polymers, *Nanoletters*, 1, **2001**.
- 2) Andrescu, D., Wanekaya A., O.A. Sadik, Wang J., Nanostructured Polyamic Membranes as Electrode Materials, *Langmuir*, 21, 6891, **2005**.
- 3) Nian Du, Sadik, O.A., *Macromolecules* 2009.