



Research Assignment - 2007

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Title of research assignment

Transfer of Patterned Polymer to a Flexible Substrate

Research abstract

We have demonstrated that a conductive polymer, polyaniline (PANi), can be assembled onto an insulated and prepatterned template through the use of an electric field and the patterned PANi can be transferred onto a polyurethane film by solution casting methods. The transfer of patterned PANi into a softened film, however, was not complete because of poor mobility of the macromolecules. This project will focus on improving the transfer of patterned PANi into polymer films, specifically examining the effects of temperature, pressure, and time on the transfer.

Research activities/experience

Research will involve 1) electrostatically assembling PANi (from solution) on microscale templates, 2) transferring the assembled PANi to polymer films, and 3) characterizing the transfer using optical microscopy and some electron microscopy (with the assistance); and 4) measuring the electrical conductivity of the transferred patterns.

Special skills or interests that would help a YSP participant with this assignment (i.e., an interest in physics, experience with specific laboratory equipment, etc.)

Interest in chemistry (and polymers) would be a plus, but is not necessary.

Lab safety/issues unique to this laboratory. A general Lab Safety Overview will be presented by Environment Health and Safety to both RET and YSP participants prior to the beginning of lab assignments.

Safety issues include organic solvents, high temperatures (to 300°C), and high pressures (to 10,000 psi).

Suggested literature to be reviewed prior to beginning this research assignment.

Research/Lab Summer Hours

- Monday through Thursday
 Monday through Friday

Scheduled Research/Lab Meetings : a.m. – : a.m.

- Daily Wednesday To be determined
 Monday Thursday
 Tuesday Friday

Lab/research project URL

Research/Lab Supervisor

Email

Phone

Research/Lab Assistant

Email

Phone