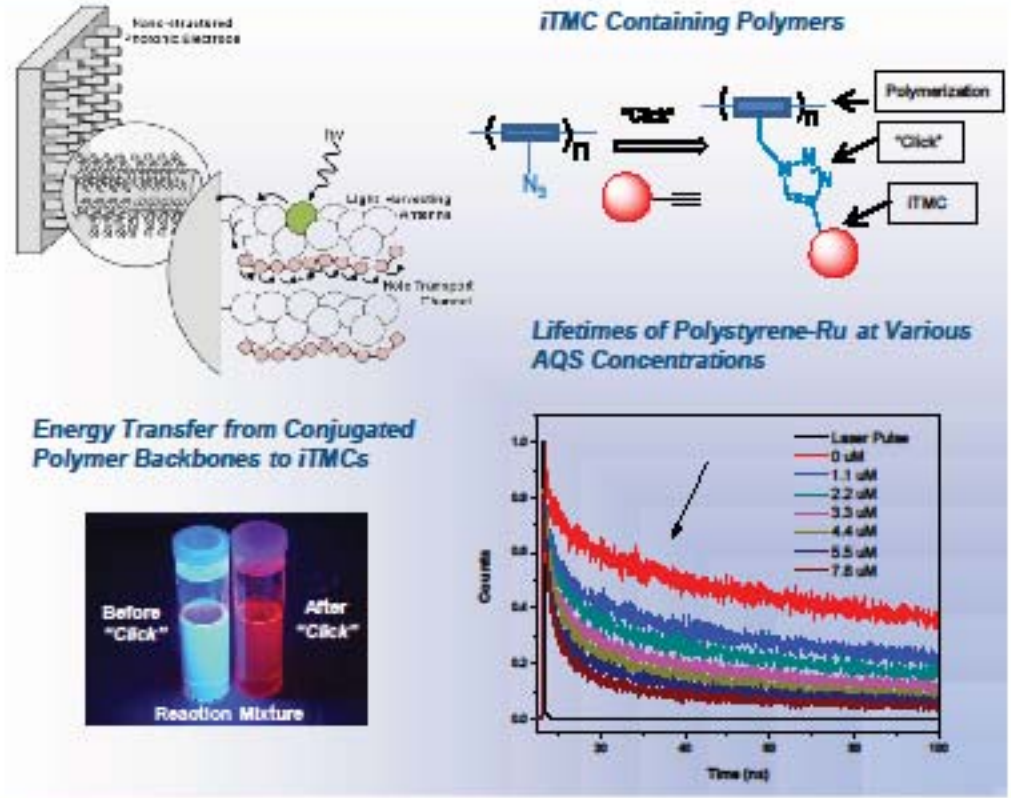
Meyer

U.S. DEPARTMENT OF ENERGY | Office of Science

NanoscaleTransport in Ionic Transition Metal Complex Functional Polymers

E. Puodziukynaite, Y. Sun, L. Wang, J. Reynolds*, J. Papanikolas*, K. Schanze*, U. North Carolina and U. Florida



Sun, Y.; Wang, L.; Puodziukynaite, E.; Reynolds, J. R.; Papanikolas, J.; Schanze, K. S. "Polystyrene with Pendant Ru-polypyridine Units Prepared by RAFT Polymerization: Photophysical Characterization and Amplified Quenching", in preparation.

Accomplishments:

- A modular approach has been developed for the chemical synthesis of structurally-well defined polymers that feature pendant ionic transition metal complex chromophores grafted at high density.
- Photophysical and electrochemical studies probed the dynamics and efficiency of energy and charge transport that within the polymeric chromophore assemblies.
- Approaches for attaching the chromophore arrays to metal oxide interfaces are being developed.

Significance:

- The polymeric chomophore arrays provide insight into the molecular mechanisms for charge and exciton transport on nanometer length scale.
- The chromophore arrays will be incorporated into hybrid photovoltaic devices for application as light harvesters, and for coupling the interface with oxidation and/or reduction catalyst sites.

SOLAR FUELS & NEXT GENERATION PHOTOVOLTAICS

UNC | Duke | NC STATE UNIVERSITY | RTI | UF UNIVERSITY of FLORIDA