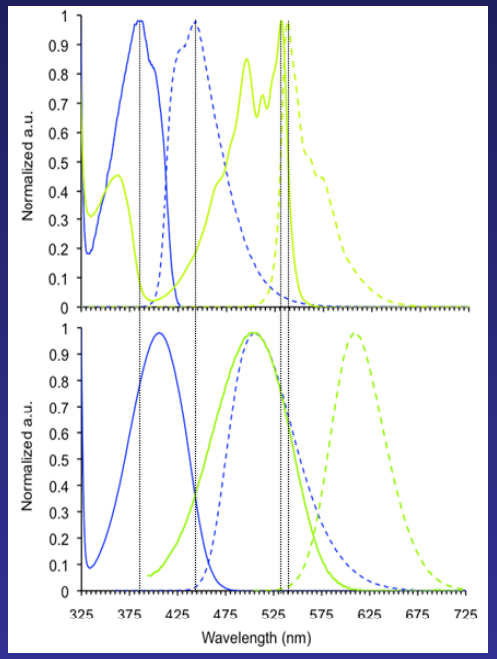
1,3-Dipolar Cycloaddition for the Creation of Conjugated Polymers

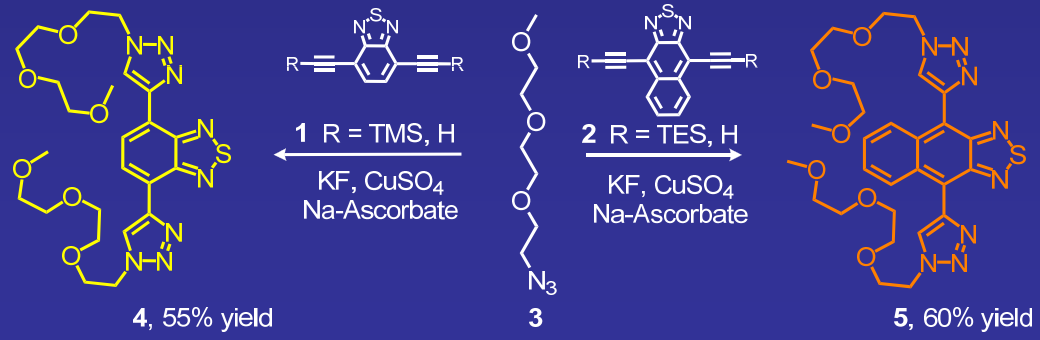
Uwe H. F. Bunz, School of Chemistry and Biochemistry Georgia Institute of Technology

We have investigated the 1,3-dipolar cycloaddition of novel aromatic diynes with an oligoethylene-glyclol based azide into novel fluorophores. We find that:

- **the cycloadducts show red-shifted absorption and emission**
- **they are water soluble and show significant fluorescent quantum yields**
- **the triazole unit is an excellent auxochrome, however it does not work well as a conjugating conduit**
- **evidence of long fluorescence lifetimes in these adducts (7 ns), which will make them useful as biofluorophore**
- **The adducts display a molecular pocket that binds copper and nickel salts in water**
- **Facile synthesis will allow the creation of diversets of these cyclo-adducts**



Absorption/emission spectra of **1** (blue), and **2** (green, Top) and **4** (light blue) and **5** (gold, both Bottom) Solid lines: absorption spectra, broken lines: emission spectra.



4, 55% yield

3

5, 60% yield