

UNIVERSITY OF RHODE ISLAND

Department of Chemistry

SEMINAR

Room 234 Pastore Hall

3:00 p.m, Wednesday March 9, 2016

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URI

**“Polymer Substitutes for
bisphenol-A”**

HOST

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Since its first commercial use in 1957, Bisphenol-A (BPA) has been applied to numerous applications in the polymer industry. Recent reports have shown BPA acting as an Endocrine Disrupting Chemical (EDC) and mimicking 17β -estradiol(E2) by binding to estrogen receptors in the human body. Since these reports, strides have been made in both academia and industry to replace BPA in consumer products by developing new polymers in the classes of polycarbonates (PC) and polyesters (PE).¹ The incorporation of the rigid aromatic diol into a polymer chain results in an increase in the thermal and mechanical properties. BPA-PC has a glass transition temperature (T_g) of 150°C and a notched Izod between 650-800 J/m.² A more sustainable PC containing isosorbide a renewable resource exhibits a T_g of 144°C .³ Co-polyesters containing 22,44-tetramethyl-1,3-cyclobutanediol, exhibits a notched Izod of >1000 J/m.²

References:

1. Nelson, A.; Long, T. *Polym Int.* **2012**, 61, 1485
2. Kelsey, D.; Scardino, Betty.; Grebowicz, Janusz.; Chuah, H. *Macromolecules*, **2000**, 33, 5810
3. Kricheldorf, H.; Sun, S.; Gerken, A.; Chang, T. *Macromolecules*, **1996**, 29, 8077