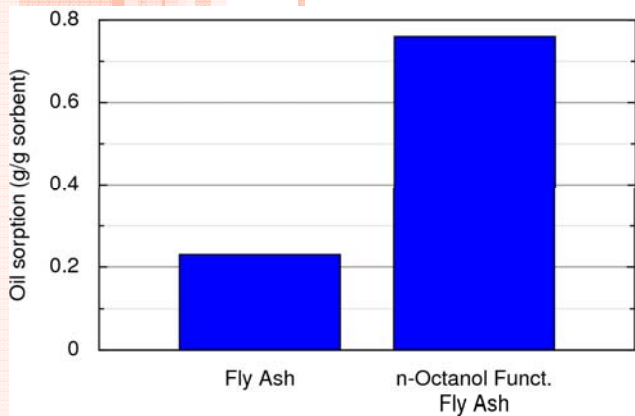
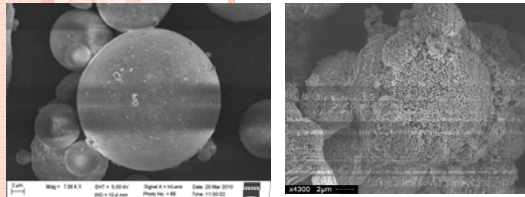


Sudipta Seal & L. L. Hench Grant: RAPID: NSF DMR: 1049915



Functionalization increases Sfc area From 3-4 to 50-60 m²/gm, Modified flyash Absorbs a huge portion of the oil Energy density of crude oil, burning value: would be approximately 20 x10E6 J per kg fly ash with 50% adsorbed oil by weight

Key Papers: *Nature Nanotechnology* (2006), *J. Crystal Growth & Design* (2009), *J. Amer. Chem. Soc* (2009), *ACS Nano* (2009), *Angewandte Chemie* (2010), *Chemical Society Reviews* (2010)
Patents: 7,347,987, 7,727,559,
Startup: NTiOx

Utilizing: Surface Engineering approach to Flyash – for making Oil Absorbent
Lightweight: High surface area of these ceramic particles can be incorporated to booms
Green and Recyclability: OOPS can be recycled through furnace to recover the energy value

NIRT: CBET-0708172

Saline Saline CeO_2

Wt p28 v/v p28

DCF
P47-phox
Nitrotyrosine
8-OHdG

PEG-nanoceria – catalytic Activity Indicators of oxidative stress are much higher in the Vldlr retina than in the normal wild type retina and injection of Nanoceria inhibits these increases.