

## Glenn T. Seaborg Center Special Seminar

# Borondifluoride Complexes: Optical Properties and Applications

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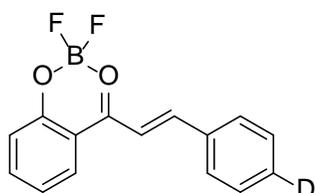
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Wednesday, October 22, 2014

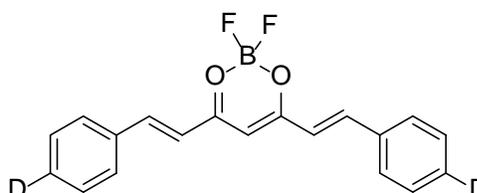
4:00 pm – 5:00 pm

Bldg. 70A, Room 3377

2'-Hydroxychalcone and Curcuminoid are naturally occurring dyes. Coordination compounds of those chromophores with borondifluoride complexes have been found to be fluorescent in solution and in solid-state. Upon appending strong donor end-groups, we have succeeded in shifting the visible electronic absorption into the red part of the spectrum with an emission that can reach the near infrared (NIR) for some compounds. The photophysical properties of those dyes will therefore be presented. Furthermore, organic fluorescent particles composed of those dyes can present emission in the NIR region with interesting photoluminescent quantum yields. To take advantages of those properties, we have synthesized new molecular structures and prepared particles containing curcuminoid borondifluoride complexes. Herein, we also present their optical properties in solution and in the "aggregated state" (solid state). In addition, the two-photon cross sections and the two-photon brightness permitting to judge the NIR-to-NIR properties of such dyes as well as other applications are presented.



2'-hydroxychalcone<sup>-</sup>BF<sub>2</sub>



curcuminoid<sup>-</sup>BF<sub>2</sub>