

# Optical and electronic properties of 3-coordinate organoboron compounds including applications in mitochondrial imaging in live cells

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Three-coordinate organoboranes possess an empty p-orbital at the boron center and can display interesting photophysical behavior due to their strong  $\pi$ -acceptor properties making them suitable for many applications in optoelectronics,[1] sensing,[2] etc.[3,4]. We have been examining the synthesis, linear and nonlinear optical properties of 3-coordinate organoboron compounds of different (dipolar, quadrupolar, octupolar) geometries for 25 years. Recently, we have focused on developing new boron-substituent combinations which provide enhanced air-stability as well as enhanced acceptor strength.[5,6,7,8,9] The lecture will present selected examples from our work which illustrate important concepts in design and optical properties, including the development of water-soluble and stable 3-coordinate boron compounds fluorescence imaging of mitochondria in live cells, and for 2-photon excited fluorescence imaging.[10]

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