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Fluorescence-based imaging using Boron dipyrromethene (Bodipy) dyads

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Abstract

Fluorescence is an extremely sensitive method for detection purposes and many molecular systems are known, and they have been applied to many applications in, for example, biological imaging, chemical sensing and environmental pollutant monitoring. Over the past few years the fluorophore borondipyrromethene (Bodipy) has emerged as a frontrunner for fluorescence-based sensing applications. The chromophore is rather robust and highly fluorescent both in solution and the solid state. The basic Bodipy unit can be readily functionalized and the color tuned over a wide spectral range. The talk will cover the work we have carried out in Newcastle on utilizing the Bodipy chromophore for disparate applications. Functions of the dye in areas such as Reactive Oxygen Species (ROS) detection, viscosity monitoring, and neural imaging will be discussed. For the latter case the application of Bodipy derivatives as new voltage sensitive dyes will be emphasized along with their biomedical usefulness.

Biography

Andrew Benniston completed his Ph.D in 1990 from Warwick University (UK) and carried out post-doctoral work at the Université de Strasbourg and the University of Texas at Austin. He is the director of the Molecular Photonics Laboratory at Newcastle University. He has published more than 130 papers in a wide variety of journals and he is on the editorial board of Analle Univ. Al.I. Cuza Iasi.