

Defects in Diamonds: Imaging, Cells and Beyond

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Defects in bulk and nanodiamonds may play a prominent role in future bioimaging and quantum optical applications. Certain defects like the nitrogen vacancy (NV) defect shows strong fluorescence and hence can be observed as a single color center. This has led to the idea to use the system for application in quantum information science. A particular important feature of the defect is its electron spin paramagnetic ground state. This coupling of this spin to its environment forms the basis of advanced concepts in using the system to engineer quantum states. In addition it provides intriguing options for application as boilable. The talk will highlight applications in both areas in particular with respect to the use of defects in nanodiamond.