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Characterization of nitrogen-doped carbon nanospheres using electron magnetic resonance

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Carbon nanospheres were produced using two different sets of apparatus in the School of Chemistry at the University of the Witwatersrand. Nitrogen was introduced into the samples using a several sources of nitrogen, including pyridine. Electron magnetic resonance (EMR) was used to characterize a range of samples of varying concentrations of nitrogen at room temperature. The spheres doped with nitrogen show a strong paramagnetic peak at $g = 2$, indicating that the nitrogen takes up substitutional sites in the carbon matrix. Careful analysis enables us to determine the nitrogen content in each of the samples by integration of the resonance peak, and normalising to the mass of the sample. Comparison with a reference sample allows us to extract the g for each sample. Power saturation experiments show the the relaxation rates of the nitrogen ions are large in all the samples studied.

**Level (Hons, MSc,
 PhD, other)?**

other

**Consider for a student
 award (Yes / No)?**

No

**Would you like to
 submit a short paper
 for the Conference
 Proceedings (Yes / No)?**

Yes

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