**Associate Professor Shane Durbach**

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**Education**

University of Johannesburg, South Africa

* PhD in Chemistry (20 May 2009)

University of the Witwatersrand, Johannesburg, South Africa

* MSc in Chemistry (24 June 1997)
* Honors in Chemistry (7 May 1992)
* BSc in Chemistry and Chemical Sciences (2 May 1991)

**Publications and other research outputs**

1. Lerato Hlekelele, Paul J. Franklyn, Pranav K. Tripathi and Shane H. Durbach\*. Morphological and crystallinity differences in Nitrogen-Doped Carbon Nanotubes grown by Chemical Vapour Deposition Decomposition of Melamine over Coal Fly Ash. RSC Advances, 2016, **6**, 76773-76779. DOI: 10.1039/C6RA16858B.
2. Nikita Tawanda Tavengwa, Nomso Hintsho, Shane Durbach, Isabel Weiersbye, Ewa Cukrowska, Luke Chimuka,\* Extraction of explosive compounds from aqueous solutions by solid phase extraction using b-cyclodextrin functionalized carbon nanofibers as sorbents. *Journal of Environmental Chemical Engineering* 4 (2016) 2450–2457.
3. J. Muthu\*, P. Bradley, I.K. Jinasena, S. Durbach, A. Moya, R. Paskaramoorthy. The effects of carbon nanofiber on the mechanical properties of glass/coir fibre reinforced polyester hybrid composites. *Polymer Composites 29 January* 2016. DOI: 10.1002/pc.23938 1-11.
4. N. Hintsho, A. Shaikjee, P.K. Tripathi, P.Franklyn and S. Durbach\*. The effect of CO2 on the CVD synthesis of carbon nanomaterials using fly ash as a catalyst. *RSC Adv.*, 2015, **5**, 53776. DOI: [10.1039/C5RA06892D](http://dx.doi.org/10.1039/C5RA06892D).
5. N. Hintsho, A. Shaikjee, H. Masenda, D. Naidoo, D. Billing, P. Franklyn, S. Durbach\*. Direct synthesis of carbon nanofibers from South African coal fly ash. *Nanoscale Research Letters* 2014, **9**:387  DOI:10.1186/1556-276X-9-387.
6. L.N. Dlamini, R.W. Krause\*, G.U. Kulkarni, S.H. Durbach. Synthesis and characterization of titania based binary metal oxide nanocomposite as potential environmental photocatalysts. *Materials Chemistry and Physics* **129** (2011) 406–410.
7. L.N. Dlamini, R. W. Krause\*, G. U. Kulkarni, S. H. Durbach. Photodegradation of bromophenol blue with fluorinated TiO2 composite. *Appl Water Sci* **1** (2011):19–24.
8. R.W. M. Krause\*, B.B. Mamba, L.N. Dlamini, S.H. Durbach. Fe–Ni Nanoparticles supported on carbon nanotube-co-cyclodextrin polyurethanes for the removal of trichloroethylene in water. J*ournal of Nanoparticle Research* **12** (2010):449–456.
9. S Durbach\*, R.W Krause, M.J Witcomb, N.J Coville. Synthesis of branched carbon nanotubes (b-CNTs) using copper catalysts in a hydrogen-filled DC arc discharger. *Carbon* **47** (2009) 635–644.
10. K.L Salipira, R.W Krause, B.B Mamba\*, T.J Malefetse, L.M Cele and S.H Durbach. Cyclodextrin polyurethanes polymerised with multi-walled carbon nanotubes: Synthesis and characterisation. *Materials Chemistry and Physics* **111** (2008) 218-224.
11. K.L Salipira, B.B Mamba\*, R.W Krause, T.J Malefetse and S.H Durbach. Cyclodextrin polyurethanes polymerised with carbon nanotubes for the removal of organic pollutants in water. *Water SA* **34** (1) (2008) 113-118.
12. K.L. Salipira, B.B. Mamba\*, R.W. Krause, T.J. Malefetse, S.H.Durbach. Carbon nanotubes and cyclodextrin polymers for removing organic pollutants from water, *Environ. Chem.Lett*. **5** (2007), 13-17.
13. S Durbach\*, N.J. Coville and M.J. Witcomb. The effect of hydrogen, helium and their mixtures on the synthesis of carbon nanotubes in a DC arc-discharger. *Fullerenes, Nanotubes and Carbon Nanotubes* **13** (2005) 155-169.

**Awards and honours:**

1. Team member that won the Faculty of Science’s Team Teaching Award (University of the Witwatersrand, South Africa) – 2011
2. Team member that won the Vice Chancellors Team Teaching Award (University of the Witwatersrand, South Africa) – 2011

**Area of research:** NANOMATERIALS.

My research interests lie in investigating various synthetic strategies for shaped carbon nanomaterials. In recent years I have branched out into two new areas: 1) The use of solid waste materials as either catalysts for carbon material synthesis or as sources of carbon to make these nano and micro-sized carbon materials, 2) The synthesis and application of colloidal, shaped, inorganic crystalline solids as templates for hollow or filled carbon materials. In addition to this I am currently focussing on finding applications for these nanomaterials in areas such as composites (for low-cost building materials and other beneficial community related uses) and photocatalysis (e.g. through the conversion of carbon dioxide to fuels).

**Affiliations and memberships:**

Member of the South African Chemical Society