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Surface functionalization of nanotubes prepared by different means towards modification of their properties


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Photocatalyst materials which are suitably stable often have large band gaps and can only be activated by UV light. Our recent research has involved the synthesis and modification of novel inorganic nanostructured materials in order to exploit their properties in visible light active photocatalytic systems. We have shown that self-assembled surface modification by organic molecules imparts trititanate nanotubes with stable, recyclable photocatalytic activity under visible light illumination. Using solid state NMR, XRD and Mass spec we have recently been looking into the arrangement of the organic molecules on the nanotube surface. We have also prepared titanium dioxide nanotube arrays by anodization for photoelectrochemical water splitting and modified them with Au and MoS₂ for comparison.

Speaker Biography

Dr. Graham Dawson is currently a lecturer at Xi'an Jiaotong Liverpool University, Suzhou China, joining in March 2013. Before taking this position he worked at the Suzhou Institute of nanotechnology and Nanobionics (SINANO) as a postdoctoral research assistant then as an associate professor. During this time, Dr. Dawson was principal investigator of several provincial and national level projects. He completed his PhD studies under Professor Wuzong Zhou at the University of St. Andrews, Scotland and has presented his research at several national and international conferences and published papers in peer reviewed international journals. Dr. Dawson's research interests are in the area of nanomaterial synthesis towards applications in photocatalytic degradation and water splitting.

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