

FUNCTIONAL MATERIALS DIVISION ANNUAL REPORT FOR 2013

1. Board membership

The Functional Materials Division board was constituted in January 2012 following the establishment of the Division. The membership of the board is composed of the chair (Professor Robert Dorey, University of Surrey as of Jan 2014; formerly Cranfield University) and chairs of the relevant committees:

- Dr Martin Kemp: Nanomaterials and Nanotechnology Committee
Nanotechnology Knowledge Transfer Network (NanoKTN)
- Professor Markys Cain: Smart materials and Systems Committee Chair
National Physical Laboratory
- Dr Steve Dunn: Functional Materials Training Board Chair
Queen Mary, University of London
- Michael Khor: Functional Materials (Singapore) Committee Chair
Nanyang Technological University Singapore

2. Board meetings

The board of the Functional Materials Division do not meet physically but communication takes place via phone and email, as well as conversations between individual board members. The chair, R Dorey, attends committee meetings of the member boards where possible.

3. Activities during 2013

3.1. Technical programme

- HiPerNano 2013: NNC collaborated with NanoKTN and The IET in planning and delivering the event HiPerNano 2013, Austin Court Birmingham. NNC Members Dr Martin Kemp and Prof Martin Castell respectively chaired and contributed to the Technical Committee and both chaired sessions at the conference. The event attracted over 80 delegates from industry and academia.
- HiPerNano 2014: Discussions took place regarding various options for the format. It was agreed that this committee would like to be involved and that volunteers would be required to join the technical steering committee and probably to chair one of the sessions. The options discussed centered on 1 day with parallel sessions or 2 days without parallel sessions. Other options included 4 topics:
 - Nano-composites – 10 presentations
 - Graphene – 10 presentations
 - Surface coatings – 10 presentations
 - Novel manufacture – 6 presentations
- Nanomaterials for Enhanced Thermal and Fire Retardant Properties April/May 2014. One day event organized and run by this committee in conjunction with IOM3 conference department and probably hosted by IOM3 in London. The event should be run for the benefit of industry and target questions that are being asked regarding such areas as measurement and characterization.

3.2. Web-site developments

- In line with the IoM3 website redevelopment, new materials is being developed for the FMD microsite
- Static contents of NNC website updated including short biogs of committee members
- SMASC website was updated with membership changes and short biographies of new members and their activities.

3.3. Engagement with technical community and/or local societies

- Individual committees within the FMD continue to collaborate with each other and with the relevant KTNs.
- SMASC engages closely with the Materials KTN and is fully supportive of all the Smart Materials activities that are undertaken by this KTN. During 2013 SMASC has worked in close cooperation with the smart materials node of the Materials KTN in delivering a number of joint events in the UK.

3.4. Contributions to IoM3 house journals

- Contributions to materials world for nanotechnology themed April edition - Article on graphene for Materials World (NNC)

3.5. Other

- NNC membership is being canvassed to ensure they still wish to remain active following a reduction in attendance at meetings
- Dr Martin Kemp representing NNC presented a paper at the RAEng event 'Innovation in Materials' chaired by Sir John Parker at RAEng 11th November.
- SMASC board membership reviewed – the following have resigned Peter Foote, Sharon Baurley, Phil Irving, Chris Bowen, Peter Lloyd (deceased)

4. Strategy and Objectives for 2014

4.1. Opportunities and constraints

SMASC will continue to work with and alongside the Materials KTN Smart Materials node.

4.2. Specific targets

5. Other matters

Appendix: Technical Programme as of December 2013

Date	Status (Held /Progressing /Planned)	Title	Location	Organising Division(s) /Committee(s) /Collaborators	Financial Underwriter (IOM3/ Local/ Other)	100% Target No's	Actual No's
17 April 13	Held	HiPerNano2013 as part of Nanomaterials Conference	Birmingham	NNC			
July 2013	Held	Smart Materials as Emerging Technologies	NPL, Teddington	SMASC and KTN, and TSB	KTN	35	35
10-11 Dec 2013	Held	Auxetics and Metamaterials as Emerging Smart Technologies	IOM3, ICHT, London	SMASC and Materials KTN	KTN	20	18
Feb/March	Planned	Smart Materials in Design	London, RCA	SMASC and	KTN	30	

2014				Materials KTN			
13 th March 2014	Planned	HiPerNano2014	RAEng London	NNC			
June 2014	Planned	Nanomaterials for Enhanced Thermal and Fire Retardant Properties	IOM3	NNC			
30 Oct 2014	Planned	Smart Actuation	Rolls Royce, Derby	SMASC and IMechE	IOM3	70	