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### **Successful launch for Bristol ACCIS Centre**

The Advanced Composites Centre for Innovation and Science (ACCIS) at the University of Bristol was formally opened on 16 April by Malcolm Wicks, Minister of State for Science and Innovation, at an event with 200 invited guests from industry and academia.

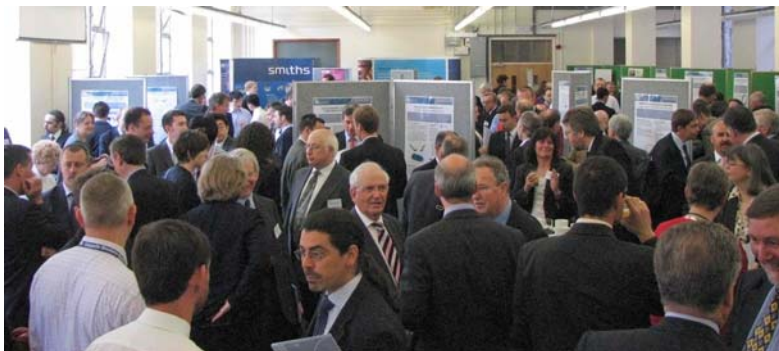
Based in the Engineering Faculty, ACCIS brings together research in composite materials across the University in four central themes: multifunctional composites and novel microstructures; design, analysis and failure; intelligent structures; and composites processing and characterisation.

The £18M new Engineering laboratories, which opened in 2005, plus a recent capital grant from SWRDA and Airbus, provide state of the art experimental facilities.

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At the launch, the formation of a new Rolls-Royce University Technology Centre (UTC) in composites, to be hosted by the University of Bristol, was announced by Ric Parker, Rolls-Royce Director of Research and Technology ([news release on RR website](#)).

Also, the Smiths Aerospace-EPSC University Technology Strategic Partnership at Bristol, in collaboration with the University of Oxford, was launched by John Ferrie, President of Smiths Aerospace ([news release on Smiths Aerospace website](#)). Further endorsements were given by Iain Gray, Managing Director of Airbus UK; Juliet Williams, chairman of SWRDA; and NCN Director Deborah Pullen.



ACCIS is working with leading research groups in UK and overseas Universities, research organisations and companies, and is keen to develop new relationships and to act as a focus for composites research and collaboration. Further information: [www.bristol.ac.uk/composites](http://www.bristol.ac.uk/composites)

*In the UK Regions: the South West*

### **NCN launches South West composites technology awareness programme**

NCN's South West technology awareness programme was launched on 17 April at the Airbus Composite Structures Design Centre (CSDC), Filton.

With a focus on large composite component manufacturing, the CSDC hopes to attract companies from all sectors of the region's industry and offer its facilities for product development.

The launch was aimed at the South West's higher education institutes to gain their support in acting as subcontractors to the programme by providing consultancy services to companies seeking technical assistance.

The new programme is allied to the Composites Research Alliance Regional Engineering Facilities, which, with the support of the South West Regional Development Agency, has funded both the Advanced Composites Centre for Innovation and Science (ACCIS) at Bristol University and the CSDC at Airbus, Filton.

Utilising various regional capabilities - such as those at the universities at Bristol, Bath, Exeter and Plymouth - the programme will identify appropriate technologies to match industry needs for improved competitiveness.

For more information or to benefit from the NCN's South West composites technology awareness programme please contact the Helpdesk: e-mail [info@ncn-uk.co.uk](mailto:info@ncn-uk.co.uk) tel 01223 894 662.



### **NCN CASE award opportunity**

The NCN has been allocated an EPSRC CASE award to support relevant research in the composites field. If you are interested in submitting a proposal then fill in and send a standard EPSRC application form detailing your proposed project to [info@ncn-uk.co.uk](mailto:info@ncn-uk.co.uk) for review. The deadline for this submission is 29 June 2007, and the selected project will be informed by 20 July 2007.

## BC launches state-of-the-art biocomposites facility

Read the [full story on the NCN website](#).

BC, University of Wales, Bangor (formerly known as the BioComposites Centre) has launched BC Tech Transfer, a product development facility and new technology transfer centre.



Since 1989, BC has been a leader in the research, development and commercial application of bio-based materials. It operates as a proving ground for the commercial viability of new technologies before their release to market. The staff has a wealth of knowledge in the use of biomaterials in functional, practical applications.

With £550k additional funding, facilities now include: pressurised refining; hot pressing; chemical synthesis; pulp and paper analysis; chemical treatment; milling; wood and non-wood fibre production; compression moulding; resin production; engineered wood prototyping; wood-based panel production and evaluation; and blending.

Companies can plug-into BC's expertise at any stage of the development process: from initial scoping research, to full-blown product development and manufacture. Its clients come from a range of sectors including composites; forest products; resins, coatings and plastics; and fine chemicals.

### Further information

Read the [full story on the NCN website](#).

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## Natural nanofibre composite

Back in February there was an eye-catching news story on fishing rods made from carrots.

This turned out to be about the application of *Curran*, a fibre reinforced composite invented by David Hepworth and Eric Whale. Curran™ is a bio-composite that incorporates nanofibres extracted from carrots.



Since Curran uses bio-fibres from renewable plant material it's claimed to be a greener technology than glass or carbon fibre composites.

The inventors' company CelluComp Ltd has recently entered the sports goods market by launching *Just Cast*, a range of fly-fishing rods that utilise Curran's distinct properties.

Could Curran be used as an alternative to glass or carbon fibre composites; could it be combined with these to produce hybrid composites? More information on the CelluComp website at [www.cellucomp.com](http://www.cellucomp.com)

## NCN working group defines route for UK success in MMCs

*Metal matrix composites, MMCs, are the next major set of materials being developed for reducing weight in metallic structures.*

*In the bid to meet environmental targets, aircraft in particular will benefit from weight reduction and corrosion resistance offered by MMCs.*

The NCN's MMC working group consists of key representatives from the UK's main MMC materials suppliers, end-users and universities. The group produced a *technology roadmap* in March 2006, which is on the NCN web site and available to logged-in, registered NCN members: [view document](#).



*Aircraft brake component about 0.5m across made from a titanium alloy composite. Courtesy of TISICS [www.tisics.co.uk](http://www.tisics.co.uk)*

The main messages from the roadmap were:

- The UK has important strengths in MMCs, including a good record of creativity and innovation, and significant expertise in aluminium MMCs. Despite core manufacturing and product development capability in UK SMEs, a lack of strategic investment has led to a lack of critical mass at present. A goal of the working group is to achieve critical mass by 2010.
- End-user interaction with the NCN is critical to ensure that UK industry has access to these technologies in the battle to reduce weight, in order to reduce the environmental impact and lifetime costs of aircraft.
- This network of producers and customers will ensure that the UK leads industrialisation and exploitation of the technology in UK and export markets.
- There is a lack of knowledge about developments and capabilities in this field. The NCN is in a strong position to provide databases, and the following were suggested:
  - Directory of capabilities.
  - Guidelines on design and machining.
  - Certified database of materials properties.
- There is a gap in knowledge about current and potential applications for MMCs. More publicity should be undertaken. A set of case studies on MMCs would also be useful for promotional purposes.

As a result of this, the NCN provided funding for the production of a database to be available via a web site, including the following steps:

- Discussion and agreement of the database content and structure with the MMC working group members.
- Collation of information provided by the working group members for the different sections of the web site database.

The web site will contain information on the following subjects:

- Description of the different types of MMC.
- Production routes and subsequent processing techniques.
- Industrial applications and case studies.
- Materials suppliers.
- Academic research.
- MMC typical materials properties.

Further modifications, notably to provide materials properties, were agreed during March 2007, and will be implemented shortly. The MMC web site has not yet been launched, but will be linked to the NCN web site in due course.

For further information about the working group or the web site please e-mail Simon Barnes: [simon.barnes-2@manchester.ac.uk](mailto:simon.barnes-2@manchester.ac.uk)

## Web resources

**Please note** that most in-depth items on the NCN website are only available to registered NCN members. Membership is free of charge and helps you get the best out of NCN information and technical support: [register for NCN Membership](#)

- **More guides to best practice**

The NCN has published two more best practice guides on key composites-related topics. The new guides (PDF files) are now available on the NCN website for viewing and printing:



### ***Design tools for fibre reinforced polymer structures***

by Marion Meunier, White Young Green, and Simon Knibbs, CenitDesktop

Aimed primarily at SMEs, the objective of this guide is to help composite design engineers select the best design tool set for their needs. Areas covered include: laminate design tools; analytical design tools for structural elements; finite element software; and production design tools. There are also benchmark studies of laminate and analytical tools.

### ***Repair of fibre reinforced polymer structures***

by Sue Halliwell, NetComposites

Also aimed at SMEs, this guide reviews the current status of repair techniques, identifies preferred repair procedures and discusses test methods for assessing the strength of repairs. It presents an overview of FRP repair and inspection techniques used in many industry sectors. [View NCN best practice guides](#)

- **Foresight report 2007**

The objectives of the IOM3/NCN Foresighting Working Group's final report are to identify long-term industry needs in each key industry sector and to determine which areas represent cross-sector needs, and which are sector-specific. [View Foresight report](#)

- **Composite materials in the UK oil & gas industry: technology-gap review**

Produced for the NCN by Rod Martin at MERL, this review places strong emphasis on the offshore sector where most UK hydrocarbon production occurs and where future global challenges lie. It discusses strategic steps that may be taken, including actions for the NCN, to further the use of composites in this important industry. [View technology-gap review](#)

- **Fibre reinforced polymer (FRP) composite bars for new build**

An NCN case review highlighting the technical, economic and environmental benefits of using FRP bars instead of steel for concrete reinforcement is now available on the NCN website. You will also find a growing list of case studies illustrating how NCN technical support has helped companies solve problems, improve design or adopt better manufacturing techniques.

[View list of NCN case studies and case reviews](#)

[NEW: view FRP composite bars for new build](#)

## Registered NCN Members get in-depth information . . . and much more

Visitors to the NCN website will find a growing range of information, with the most in-depth items only available to Registered NCN Members.

NCN Membership is free of charge and helps you get the best out of NCN information and tech support.

Information on the NCN website at [www.ncn-uk.co.uk](http://www.ncn-uk.co.uk) now includes:

- News and forthcoming events
- NCN resources and technical supports services
- Working groups
- Industry and technology roadmaps
- Case studies and guides to best practice
- Training and technology provider directories

NCN Membership also allows the NCN to distribute important information and news of key developments directly to Members.

When you become a Registered NCN Member, you'll become a member of the *Materials Knowledge Transfer Network* as well. This too is entirely free of charge and gives you, via its website, access to even more information on composites, as well as information on other materials.

[Register for Membership of the NCN](#) visit the [Materials Knowledge Transfer Network website](#)

## Future events

### Technical textiles used in composite structures 5 June 2007, QinetiQ, Farnborough

An NCN workshop to discuss development and manufacture of textile pre-forms and highlight current and future industrial needs for their use in composite structures. The event will also review support available for technology transfer and current initiatives for new technology development, and it includes a tour of QinetiQ's new textile stitching capabilities. [Further information](#) on the NCN website.

### How can your company benefit from the use of composites?

*Three, one-day training events across Wales:*

**12 June 2007, Mid Wales: Coleg Powys, Newtown**

**14 June 2007, South Wales: Technology Centre Waterton, Bridgend**

**25 June 2007, North Wales: OptIC Technium, St. Asaph**

Organised by the WECOTAC Consortium for Industrial Training, the events are free of charge and all cover the same topics. For designers and engineers working in the automotive, marine, aerospace and general engineering sectors who wish to learn more about composites or want to specialise in particular areas of composites. [Further information](#) on the NCN website.

### FRP footbridges

**20 June 2007, IStructE, London**

Organised by the Network Group for Composites in Construction (NGCC). Adopting fibre reinforced polymer composites can be a challenge for traditional bridge architects and engineers. Dissemination of information and technology plays a vital role in overcoming obstacles: this event provides a forum for the exchange of ideas and presentation of concepts and case studies.

*FRP Footbridges* will benefit all involved in the bridge construction industry; from material suppliers, through to bridge engineers, architects and asset owners. [More information](#) on the NGCC website.

### Engineering simulation conference

**26 June 2007, IBM Warwick**

An opportunity to view engineering simulation tools and solutions, from design to manufacturing. Organised by ESI-UK Ltd ([www.esi-group.com](http://www.esi-group.com)). [Conference leaflet on the NCN website](#). Further information from Stephanie Austin: e-mail [sau@esi-group.com](mailto:sau@esi-group.com) tel: 01865 338 007.

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**Development and Commercialization of Composite Materials and Technologies**  
**14 - 17 August 2007, Fort Garry Hotel & Conference Centre, Winnipeg, Canada**

CANCOM2007, the sixth Canadian-International Composites Conference, is a technical forum for the exchange of information and ideas about composite materials and structures. Canadian and international participants from industry, government and academia are expected. Details at [www.cancom2007.ca](http://www.cancom2007.ca)

**Stretching the Endurance Boundary of Composite Materials: Pushing the Performance Limit of Composite Structures**

**23 - 28 September 2007, Island of Madeira, Portugal**

This conference is for those interested in the development of modelling methods applied to predicting the atomistic, microscopic and macroscopic response of composite materials under stress and in hostile environments. The event focuses on the structural and functional properties of engineering composites and the sustainable high performance of components and structures.

Full details on the [conference website](#).

**FREE technical support from NCN**

Your company can benefit from free tech support in any aspect of composite materials, design, manufacture or use. The NCN provides -

- free information and advice
- free, direct access to technologies, facilities and expertise
- free consultancy/problem-solving services

*You can see examples of how the NCN has helped companies solve problems, adopt more effective technologies or develop new products by viewing [case studies](#) on the NCN website.*

**Need free tech support?**

Please contact the NCN Helpdesk: tel 01223 894 662 or e-mail [info@ncn-uk.co.uk](mailto:info@ncn-uk.co.uk)

As well as providing information, the Helpdesk sets up one-to-one consultations with experts and organises direct practical assistance through NCN's *Information, Diagnostics* and *Solutions* range of in-depth tech support services, summarised in a [printable leaflet](#) on the NCN website ([www.ncn-uk.co.uk](http://www.ncn-uk.co.uk)).

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