

NCN invites members to its
ANNUAL FORUM

26 September 2007

Heritage Motor Centre, Banbury Road, Gaydon, Warwickshire, CV35 0BJ

- ▶ *see progress made after three years' successful operation*
- ▶ *hear future plans for continuing to meet the demands of the composites community*

Places are limited - please enrol without delay: [enrolment form](#) on the NCN website

The programme

09.30 Registration and Coffee

10.00 Welcome and Introduction; Ken Wappat, NCN Chairman

10.15 Keynote address: Composite Materials and their Impact on Motorsport; Prof. Gary Savage, Operations Director, Honda Racing F1

10.45 Materials UK; Dave Bott, CEO, Materials UK

Composites Showcase - 1

- 11.10 - Airbus CSDC; Adrian Tayler, CSDC Business Manager
- DTI Project Update; Dr Nick Warrior, University of Nottingham
- NW Centre; Dr Richard Day, University of Manchester

12.15 Lunch, and free entry to the Heritage Motor Centre Museum

Composites Showcase - 2

- 13.15 - GKN CRC; Dan Ninan, Technology Manager, GKN
- Automotive Composite Design; Dan Parry-Williams, Iquad Consultants
- TWI Validation Centre; Philip Wallace, Centre Manager, TWI Ltd
- CamTec; Andy Smith, Integrated Product Team Engineer, CamTec

14.45 Closing Remarks; Deborah Pullen, NCN Director, TWI Ltd

[Further information and enrolment form](#) on the NCN website



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To receive this newsletter regularly - and to get the best out of NCN - you must be a registered NCN member. Membership is free and registration is easily completed on-line on the NCN website: [register with the NCN](#)

[I wish to change the e-mail address on the NCN mailing list](#) - please click this link to e-mail the NCN (info@ncn-uk.co.uk) with details of the new e-mail address. **In your e-mail message, please provide the e-mail address to be replaced, as well as the new e-mail address.**

Read *NCN e-news* but would prefer not to receive it again?

[I no longer wish to receive the NCN e-newsletter](#) - please click this link to e-mail the NCN (info@ncn-uk.co.uk) so that your contact details can be removed from the NCN e-newsletter mailing list. **In your e-mail message, please provide your e-mail address so that we can locate and delete your details from the list.**

Network News

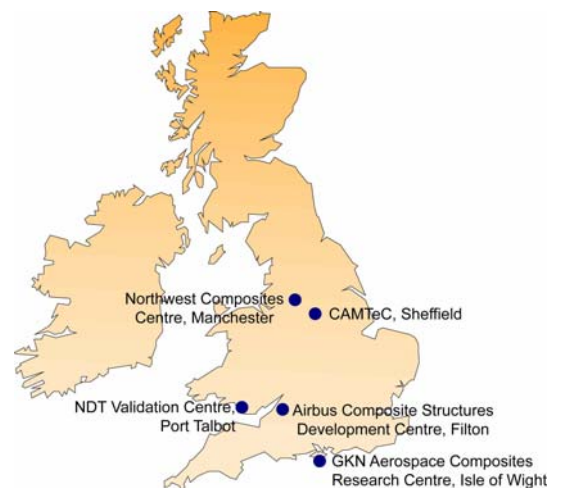
CAMTeC is fifth NCN Centre of Excellence

Located in the Yorkshire region, CAMTeC (Composites & Advanced Materials Technology Centre) is the latest UK facility to join the NCN *Centres of Excellence* network.

Supported by the Regional Development Agency *Yorkshire Forward*, CAMTeC is an initiative resulting from collaboration between Sheffield University and Boeing. CAMTeC will act as a research, design, manufacturing and technology transfer centre for composites developed for general manufacturing and aerospace applications.

CAMTeC will focus on low temperature cure composites and hybrid (composite/metal) structures.

More information on the CAMTeC website at www.camtec-uk.org



NCN Centres of Excellence

News

NCN develops links with European composites network

The NCN is developing links with the European composites network *CompositesIQ*. Created by a composites virtual institute project (ERIC) funded by the European Community under the Competitive and Sustainable Growth Programme, CompositesIQ exists to help the European composites industry become increasingly competitive in a global arena. It aims to do this by making it easier for designers and manufacturers to find and exploit the best and most competitive composite technologies and techniques currently available - or find the best partners to develop new solutions. [CompositesIQ website](#)

News

NCN wins Best Materials & Design Innovation prize

An NCN poster displayed earlier in the year at the Materials KTN Annual Meeting in London won *Best Poster 2007* in the category Best Materials & Design Innovation.



Philippe Bastid (right) receives the Best Materials & Design Innovation award from TWI Chief Executive Bob John

The poster, 'NCN Optimises Strength-to-weight Performance of Composite Structure', was produced by the NCN project team at TWI Ltd.

The winning poster described how NCN technical support helped Kettering-based Cooney Marine optimise the fibre reinforced composite structure of its new dinghy launch system, the 'Cobra' davit.

Through the NCN, TWI engineer Philippe Bastid used finite element analysis to study stresses within the Cobra and predict its strength. This allowed optimisation of the Cobra's composite structure to provide the most favourable distribution of stresses and best strength-to-weight performance.

The winning poster showed an example of how the NCN is helping to bring innovative products to market efficiently and with minimum risk.

It was based on an NCN case study, which you can [view on the NCN website](#). So far, around 200 companies have benefited from NCN technical support.

In the UK Regions

Launch of Welsh Composites Consortium (WCC)

To bring together academia and industry for the sharing of knowledge, skills and best practice in use of composite materials, the WCC has been formed from Welsh academic institutions, industrial forums and advisory groups. [Full story](#) on the NCN website.

The WCC can provide expert assistance to SMEs across Wales in the form of advice, composite awareness events and initial project-scoping work, as well as guidance on possible funding routes for further collaboration.

The WCC is supported by the Welsh Assembly Government's Knowledge Exploitation Fund and by the European Social Fund under Objective One.

For information on participation in pilot training events and for dates of composite awareness events, visit the WCC website at www.welshcomposites.co.uk



Over fifty guests attended the WCC launch at the School of Engineering, Swansea University

News

RCL expansion meets needs of growing composites industry

Swindon-based Retrac Composites (RCL) has completed a £250,000 expansion and refurbishment programme to meet the ever-changing requirements of customers and allow the company to take on a broader and more diverse range of work. A new 2,000 sq ft clean room will allow up to 45 laminators to work on one floor.



Autoclaves at RCL for curing thermoset polymer matrix composite components

Increased demand for more complex finished parts is now met by a larger assembly and bonding area with temperature and humidity control. To cope with the extra production, a third, smaller (100 x 2500mm) autoclave has been commissioned, giving much faster turn-round on smaller jobs.

According to RCL, machined finished composite parts is also a big growth area. The firm has invested in a CNC high-speed router with carousel tool changer. RCL's sister company, Retrac Productions, has also invested in extra machining capacity with a five-axis Deckel Maho DMU 70 CNC, specially sealed for cutting composites.

One of RCL's key facilities is the Zund material kit cutting machine. As most of the laminating work is kitted to maintain consistency and quality, RCL needed to upgrade the machine without compromising production. Zund came in over a weekend and upgraded the machine from 1.0 to 1.5m wide cutting area, allowing Retrac to be operational first thing Monday morning.

The Inspection department's 1 x 1m CMM co-ordinating machine has been running for 12 months, aiding RCL's drive for increased quality. RCL has also been awarded ISO 9000 and Investors in People.

Further information from Jon Greaves, Managing Director: e-mail greaves@retrac-composites.com

Retrac Composites is at www.retrac-group.com

News

Delcam scores double first in CIMdata rankings

Delcam has scored a double first in the latest *NC Software and Related Services Market Assessment* from US consulting and market research firm, CIMdata. The report rated Delcam as the world's leading specialist supplier of CAM software and the worldwide leader in supplying CAM systems to the mould, tool and die sector.

[Full story](#) on the Delcam website

Delcam's Managing Director, Hugh Humphreys, said: "For several years, we have aimed to build our company's sales by diversifying outside our traditional market in the mould, tool and die sector and increasing our business in other areas, in particular in the automotive and aerospace sectors".

The Delcam set of CAM programs consists of PowerMILL, FeatureCAM, PartMaker and ArtCAM.

www.delcam.com



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](#)

Non Destructive Testing of Composite Materials

By Ajay Kapadia, TWI Ltd



Before examining a range of key methods for non-destructive examination, this *NCN Best Practice Guide* reviews the nature of composite materials and typical flaws that may occur.

The guide is aimed at NDT non-specialists looking to buy-in NDT services - or set up minimal facilities in-house. It covers NDT methods for detecting flaws in monolithic composites with polymer matrices, but excludes composites that have either a metal or ceramic matrix.

[View the best practice guide](#) (PDF file)

Microfocus X-ray equipment

Other *NCN Best Practice Guides*:

[Design tools for FRP structures](#)

[End of life options for composites waste](#)

[Repair of FRP structures](#)

Nanocomposites

By Amir Bahrami, TWI Ltd

This *NCN Technology Review* looks at nanomaterials and their potential application as reinforcing materials in polymer matrix nanocomposites. It provides a brief overview of some of the current applications, markets, opportunities and technology gaps. [View the Technology Review](#) (PDF file)

There are also **NCN Case Reviews** on the NCN website. These examine the technical and economic benefits of using composites for specific applications within particular industry sectors.

Of particular interest to the construction sector, the following new items were produced in collaboration with the Network Group for Composites in Construction (NGCC):

[Roadside safety columns and crash barriers](#)

[FRP piles for marine applications](#)

[Composite ducting and air conditioning system components](#)

[Composite ground anchors, rock anchors and soil nails](#)

[Composite swimming pools](#)

[FRP for seismic strengthening](#)

[FRP telecom masts, utility poles and airport fences](#)

[FRP cooling towers](#)



Courtesy of Schauenburg Group, Germany

NCN Case study

Flying high with the NCN

NCN technical support has helped defence sector companies explore ways of improving the performance of small electric unmanned air vehicles (SEUAVs).

NCN *Technology Audits* plus *Feasibility Studies* have probed a range of issues and technologies aimed at making these small-scale aircraft lighter but stronger, and fly faster, quieter, further and with bigger payloads.

Work was carried out by Cambridge-based TWI Ltd, where expertise in this specialised area is partly down to key members of the multidisciplinary team being accomplished, leisure-time aero-modellers and flyers.

One area that received particular attention was effective use of the passive structural volume inherent with carbon fibre composite sandwich materials typically used in SEUAVs. The team developed ways of embedding, within the sandwich material, functional elements such as electronic systems and fuel cells, making the aircraft's structure multifunctional.

Central to the work was application of TWI know-how in the coating of composites. Areas included electrically conductive tracks for power systems; thermal barrier and reflective coatings for reduced infrared and radar signatures; and hard coatings for eliminating small, complex bearings.

You can see [other case studies](#) on the NCN 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 -

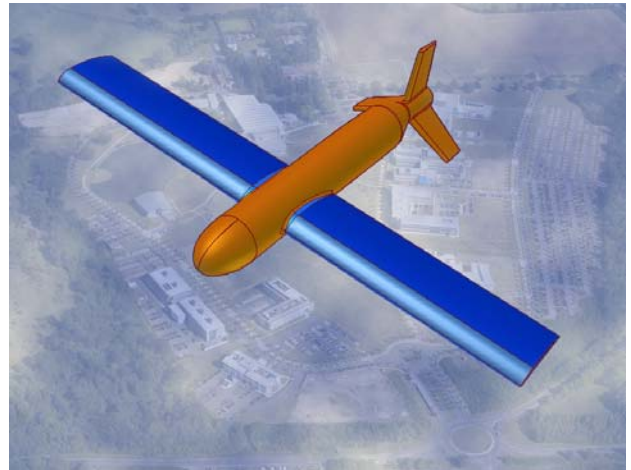
- free information and advice
- free, direct access to technologies, facilities and expertise
- free consultancy/problem-solving services

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

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).



Lighter, stronger, faster SEUAVs. NCN probed effective use of passive structural volume

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 now includes:

- News and forthcoming events
- NCN resources and technical support 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

Advanced Flexible Materials

18 September, Ewood Park, Blackburn

This one-day conference will focus on textile technology in composite materials and provide an overview of latest technical developments, market opportunities across a number of sectors, and market entry strategies. [Further information](#)

Composites Training Days

18 September, Bangor University; 20 September, Swansea University

The Welsh Composites Consortium is developing training modules covering a range of composite technologies and is holding a number of events where this material will be piloted to SMEs in Wales. More information at www.welshcomposites.co.uk or contact Anke Skrobek, e-mail A.Skrobek@swansea.ac.uk tel 01792 602 505.

Design and Manufacture for Next Generation Composites Applications

20 September 2007, Filton, Bristol

New materials design and manufacturing developments for composite structures aimed at cost-reduction and enhanced properties will be addressed at this seminar. [Further information](#)

NCN Annual Forum

26 September 2007, Gaydon, Warwickshire

The NCN, formed in January 2005, invites its members to attend the third Annual Forum to see progress so far and hear future plans for continuing to meet the demands of the composites community. [Further information](#)

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](#).

continued on next page

Composites Manufacture: Meet The Experts
8 November 2007, Delcam, Birmingham

A follow-on from last year's successful seminars examining developments in manufacturing techniques for the composites industry. Presentations will focus on tooling technologies - full agenda available shortly.
[Booking form on the Delcam website.](#)

Non-destructive Evaluation of Composite Materials
13 - 15 November 2007, QinetiQ, Farnborough

A short course of lectures, demonstrations and practice to introduce the full range of NDE techniques currently available, including ultrasonics; low-frequency methods; X-radiography; acoustic emission; shearography, and thermography. [Further information](#)

Aerospace 2030 - The Role of Smart Materials & Technologies
27 November 2007, Begbroke Science Park, Oxford University

This meeting will discuss the envisaged requirements and attributes of future aircraft entering service up to 2030, and the required and likely contribution made to these aircraft by smart materials, structures and technologies. [Leaflet](#) on the Materials KTN website; information from Fiona Lowrie at QinetiQ, e-mail: FLOWRIE@qinetiq.com

Composites Manufacturing, Repair and Testing
27 November, ECM2 Port Talbot

This one-day focus event organised by the Welsh Composites Consortium is being run in collaboration with the NDT Validation Centre at Port Talbot . More information at www.welshcomposites.co.uk or contact Anke Skrobek, e-mail A.Skrobek@swansea.ac.uk tel 01792 602 505.

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NCN is a node of the Materials KTN: www.materialsktn.net

NCN is funded by Government, Regional Development Agencies,
Devolved Administrations & Research Councils



For information on any aspect of the National Composites Network please contact the NCN Helpdesk. Tel: 01223 894 662.
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