

# Lightweight Vehicle and Powertrain Structures

## Overview

- An Automotive Council ‘Strategic Technology’, deemed a priority R&D area to build upon current UK expertise in lightweight aluminium and steel vehicle technology, lightweight motorsport and niche vehicle design and manufacturing skills and to aid the development of low carbon vehicles.
- The pursuit of lighter and therefore more fuel efficient vehicles requires a balance between the development and adoption of new materials and/or manufacturing processes with the need to maintain and improve vehicle safety and address the embedded carbon profile of a vehicle, not just tailpipe emissions.
- Lightweight technologies have the potential to bring a step-change to vehicle production as alternative materials may require different manufacturing and assembly processes.
- Lightweighting is a priority for automotive, rail and aerospace sectors. Cross industry collaboration offers a significant opportunity for progressing UK plc capability.

## Automotive technologies capability report

The full UK road map and evidence based assessment of UK capability and potential can be found at:

[www.innovateuk.org/assets/pdf/automotive%20technologies%20-%20the%20uks%20current%20capabilities.pdf](http://www.innovateuk.org/assets/pdf/automotive%20technologies%20-%20the%20uks%20current%20capabilities.pdf)

### Table Key

- S = Short term
- M = Medium term
- L = Long term

## Assessment of UK capability

Pale Blue = Lower potential

Light Blue = Medium potential

Dark Blue = High potential

Clear = No significant market requirement at that time

ROI scale 1-5 with 5 being best

Technology Categories	UK capability			Research Area Focus			Indicative ROI
	S	M	L	Short	Medium	Long	
Driveline Components	Dark Blue	Dark Blue	Dark Blue	Lightweight Gearsets	Composites		2
Lightweight structures	Dark Blue	Dark Blue	Dark Blue	Lightweight steel & aluminium	Carbon fibre composites	Smart components and materials	5
Components for low rolling losses	Pale Blue	Pale Blue	Pale Blue	High efficiency bearing, low drag brakes			1
Improved aerodynamics	Dark Blue	Dark Blue	Dark Blue				2
Advanced powertrain control - software	Dark Blue	Dark Blue	Dark Blue	Model-based multivariable control	Cylinder p based control, integrated powertrain control	Adaptive in-cycle model-based control	3
Advanced power control - hardware	Dark Blue	Dark Blue	Dark Blue				

## UK academic research centres

## High Value Manufacturing Catapult

Contact: Margo Hutchinson

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**E-mail:** [margo.hutchinson@strath.ac.uk](mailto:margo.hutchinson@strath.ac.uk)  
**Website:** <https://catapult.innovateuk.org/high-value-manufacturing>

March 2011 saw the government announce the creation of the first Catapult (formerly known as a Technology and Innovation Centre) focused on high value manufacturing. This is the first stage in a £200million investment by the government in a network of seven Catapults designed to support key enabling technology areas.

The Catapult will provide a greater degree of integrated capability bringing together seven existing centres:

- [Advanced Manufacturing Research Centre](#) (University Sheffield)
- [Nuclear Advanced Manufacturing Research Centre](#) (Universities of Manchester and Sheffield)
- [Manufacturing Technology Centre](#) (Coventry)
- [Advanced Forming Research Centre](#) (University of Strathclyde)
- [National Composite Centre](#) (University of Bristol)
- [Centre for Process Innovation](#) (Wilton & Sedgefield)
- [WMG](#) (University of Warwick)

The Catapult covers all forms of manufacture using metals and composites and process manufacturing technologies. Further information on each individual centre can be found in the following sections.

## The National Composites Network (NCN)

The National Composites Network (NCN) brings together academia and industry in a knowledge transfer network focused on the composites industry. Funded by government and industry, the NCN has established 5 Regional Centres of Excellence with the intention of developing the network further. All the centres work with representatives from multiple industry sectors, including automotive.

## 1) National Composites Network Centre of Excellence Airbus Composite Structures Development Centre

**Location:** Filton  
Bristol  
Access is arrange via the NCN  
**Contact:** +44 (0) 1223 894 662  
**E-mail:** [info@ncn-uk.co.uk](mailto:info@ncn-uk.co.uk)  
**Website:** <http://www.ncn-uk.co.uk/DesktopDefault.aspx?tabindex=65&tabid=202>

This 4,500 square metre facility at Filton is the hub of a regional alliance of companies, universities and colleges in the South West, formed to provide world-class capability in the field of composites technology. The focus of the Centre's activity is technology development, including low-cost technologies for the wider structural application of composite materials.

Facilities at the centre include:

- Clean-room with laser positioning capability.
- Autoclaves.
- Hot press.
- Automatic ply cutter.
- Hot de-bulking facilities.
- Supporting NDT equipment.
- 5-axis router.
- High temperature batch oven.

These facilities are supporting Airbus development as well as providing capacity for development work for other sectors including the automotive, marine and construction industries. Full details can be found [here](#).

## 2) National Composites Network Centre of Excellence GKN Aerospace Composites Research Centre

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**Location:** East Cowes  
Isle of Wight  
Access is arrange via the NCN  
**Phone:** +44 (0) 1223 894 662  
**E-mail:** [info@ncn-uk.co.uk](mailto:info@ncn-uk.co.uk)  
**Website:** [www.ncn-uk.co.uk](http://www.ncn-uk.co.uk)  
[www.ncn-uk.co.uk/uploads/NCN-GKN\\_160107a.pdf](http://www.ncn-uk.co.uk/uploads/NCN-GKN_160107a.pdf)

The centre focuses on developing the automated manufacture of complex composite parts for high performance sub-assemblies. The research facility has the latest testing and analysis equipment including:

- Double diaphragm forming machine.
- Vacuum assisted, fully programmable curing ovens.
- 5-axis cutting facility.
- Non-destructive testing equipment.
- Spray bake booths.
- Materials testing and analysis facilities.

### 3) National Composites Network Centre of Excellence NDT Validation Centre

**Location:** The NDT Validation Centre  
ECM2  
Heol Cefn Gwrgan  
Margam  
Port Talbot  
SA13 2EZ  
**Phone:** +44 (0)1639 873100  
**E-mail:** [info@ndt-validation.com](mailto:info@ndt-validation.com)  
**Website:** [www.ndt-validation.com](http://www.ndt-validation.com)

The NDT Validation Centre is an independent organisation, set up as a resource for reviewing, assessing and verifying all aspects of non-

destructive testing. It has no affiliation with any equipment manufacturers, regulators or end users, and so provides unbiased results and opinions.

### 4) National Composites Network Centre of Excellence Northwest Composites Centre

**Location:** University of Manchester  
Paper Science Building  
Sackville Street  
Manchester  
M3 4BB  
**Contact:** Professor Paul Hogg  
**Phone:** +44 (0) 161 306 5734  
**E-mail:** [paul.hogg@manchester.ac.uk](mailto:paul.hogg@manchester.ac.uk)  
**Website:** [www.futurecomposites.org.uk](http://www.futurecomposites.org.uk)

The Northwest Composites Centre is a joint venture between the Universities of Bolton, Lancaster, Liverpool and Manchester. The Centre's core competencies include:

- Performance, modelling, impact and durability.
- Fibres, textile structures, textile design, lay-up.
- Thermoplastics, thermosets, matrix/fibre chemistry.
- Unidirectional MMCs/GLARE, short fibre cast MMCs.
- Damage characterisation.
- Composites manufacture.
- Flame retardancy.

### 5) Advanced Manufacturing Research Centre (AMRC), Sheffield University

**Location:** AMRC with Boeing  
Advanced Manufacturing Park  
Wallis Way

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Catcliffe  
Rotherham  
S60 5TZ

**Phone:** +44 (0)114 222 1747

**E-mail:** [enquiries@amrc.co.uk](mailto:enquiries@amrc.co.uk)

**Website:** [www.amrc.co.uk](http://www.amrc.co.uk)

The AMRC works with manufacturing businesses, from global aerospace giants to local SMEs. They have over 60 member companies that each pay an annual fee to access their resources and expertise, and which help determine the research programme. Boeing is the founding partner and continues to play a key role in AMRC's development. AMRC also works with many other non member companies and institutions on individual research projects. The AMRC is a partner of the UK High Value Manufacturing Technology Innovation Centre, announced in March 2011. The AMRC opened a Knowledge Transfer Centre in 2012 and plans to open a Training Centre for advanced apprenticeships and higher training from autumn 2013.

## Other UK Centres

### Powertrain & Vehicle Research Centre (PVRC), University of Bath

**Location:** Dept. of Mechanical Engineering  
University of Bath  
Claverton Down  
Bath  
BA2 7AY

**Contact:** Professor J Gary Hawley,

**Phone:** +44 (0)1225 386855

**E-mail:** [J.G.Hawley@bath.ac.uk](mailto:J.G.Hawley@bath.ac.uk)

**Website:** <http://www.bath.ac.uk/mech-eng/auto/>

The PVRC is based at the University of Bath. They have [extensive facilities](#), including three Dynamic Engine Research Cells, for the testing and modelling of engines. Their four main research areas are:

- Engine and Powertrain Systems Research.
- Powertrain Systems Modelling and Simulation.
- Vehicle Systems Research.
- Transmissions Systems Research.

### Advanced Composites Centre for Innovation and Science (ACCIS), University of Bristol

**Location:** University of Bristol  
Queen's Building, Bristol , BS8 1TR

**Contact:** Professor Michael Wisnom

**Telephone:** +44 (0) 117 331 5311

**E-mail:** [M.Wisnom@bristol.ac.uk](mailto:M.Wisnom@bristol.ac.uk)

**Website:** <http://www.bris.ac.uk/composites/>

ACCIS looks at a wide range of composites topics. Their work looks at the design and manufacture of novel materials or composites with unique properties as well as the characteristics of such composites from design through to failure. ACCIS has four main research themes:

- [Multifunctional composites and novel microstructures](#).
- [Design, analysis and failure](#).
- [Intelligent structures](#).
- [Composite processing and characterisation](#).

They bring together composites activity from across the University of Bristol and link in with the Science and Medical faculties.

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## Centre for Innovative Manufacturing in Liquid Metal Engineering (LiME)

**Location:** BCAST  
Brunel University  
Uxbridge  
Middlesex  
UB8 3BH

**Contact:** Professor Zhongyun Fan, Director of BCAST  
**Phone:** +44 (0)1895 266406  
**E-mail:** [zhongyun.fan@brunel.ac.uk](mailto:zhongyun.fan@brunel.ac.uk)  
**Website:** <http://www.lime.ac.uk/welcome.aspx>

The EPSRC Centre for Innovative Manufacturing in Liquid Metal Engineering, LiME for short, was established in February 2010 with sponsorship from the EPSRC, Industrial companies and three Universities. LiME is a national centre of excellence in liquid metal engineering. The Centre is based at Brunel University in collaboration with two other universities (Oxford and Birmingham) and a large number of industrial companies. Initial investment from EPSRC totalled £4.5million with a further £4.6million from industry. The Centre is developing advanced solidification technologies based on nucleation control to provide high performance engineering components from recycled materials to reduce demand for material mining, purification and for thermal mechanical processing.

## Department of Materials Science & Metallurgy, Cambridge University

**Location:** Department of Materials Science and Metallurgy  
Cambridge University  
Pembroke Street  
Cambridge  
CB2 3QZ

**Contact:** Dr R.J Hobson  
**Phone:** +44 (0) 1223 334 328  
**E-mail:** [Rjh24@cam.ac.uk](mailto:Rjh24@cam.ac.uk)  
**Website:** <http://www.msm.cam.ac.uk/research/index.php>

The research of the Department is very broad but there are several areas and themes which are of interest to lightweighting, mainly relating to the [Structural Materials](#) theme. Groups undertaking research in this area include the [Coatings and Composites Group](#).

## Cranfield Innovative Manufacturing Research Centre, Cranfield University

**Location:** Cranfield University  
College Road  
Cranfield  
Bedfordshire  
MK43 0AL

**Phone:** +44 (0)1234 750111 x2501  
**E-mail:** [imrc@cranfield.ac.uk](mailto:imrc@cranfield.ac.uk)  
**Website:** <http://www.cranfield.ac.uk/imrc/>

IMRC was established in 2002. The IMRC currently has two major research themes, [Manufacturing Technology](#) and [Product-Service Systems](#) (PSS), which provide leadership and support to both academia and industry in their areas of expertise.

The [Manufacturing Technology](#) strategy builds on the existing strengths in precision technologies, welding and composites manufacture. The [Product-Service Systems](#) theme examines how organisations innovate their capabilities and processes so that they are able to design, build and provide integrated product and service offerings that deliver value-in-use. Other major developments at Cranfield associated with the IMRC that will

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provide additional synergy with the manufacturing research are linked to two new Centres:

- The [EPSRC Innovation Knowledge Centre \(IKC\) in Ultraprecision and Structured Surfaces](#). This Centre aims to develop knowledge transfer activities and exploit technologies developed through other fundamental research programmes. Total EPSRC and industry funding is around £15million.
- The £8.5million [Cranfield Integrated Vehicle Health Management \(IVHM\) Centre of Excellence](#) funded through Boeing, Rolls-Royce, Meggitt, BAE Systems, Astrium and EEDA, which aims to build on the Cranfield IMRC PSS theme and the synergies with IVHM.

## Science and Technology Research Institute, University of Hertfordshire

**Location:** Science and Technology Research Institute  
University of Hertfordshire  
College Lane  
Hatfield  
Hertfordshire  
AL10 9AB  
**Phone:** + 44 (0)1707 286404  
**E-mail:** [stri.enquiries@herts.ac.uk](mailto:stri.enquiries@herts.ac.uk)  
**Website:** <http://www.herts.ac.uk/research/stri.html>

The Institute conducts research in a wide range of disciplines. They play host to the [Materials and Structures Research Group](#), which specialises in the following areas of research:

- Advanced Materials Processing.
- Materials Joining Processes.
- Structural Integrity.
- Biomaterials, Nanoparticle functionalities and biological toxicity
- C/C Composites.

- Fibre (GF/CF) reinforced polymer composites: processing and characterisation.
- Natural fibre composites, formulation, processing and characterisation.
- Radioactive waste management.

They have previously received funding from a variety of sources, including the EU, EPSRC and industrial partners.

## Advanced Alloys Research Group, Imperial College London

**Location:** Imperial College  
London  
SW7 2AZ  
**Contact:** Professor Trevor Lindley  
**Phone:** +44 (0) 207 594 6735  
**E-mail:** [t.lindley@imperial.ac.uk](mailto:t.lindley@imperial.ac.uk)  
**Website:** <http://www3.imperial.ac.uk/engineeringalloys>

The Advanced Alloys research group looks to develop, process and characterise advanced alloys within the Department of Materials. They concentrate their research on looking at the micro-structure of alloys and the effect they have on the whole through a modelling methodology. The models cover the entire cycle from design to synthesis to processing and characterising.

## Institute for Materials Research (IMR), Leeds University

**Location:** Institute for Materials research  
Houldsworth Building  
University of Leeds  
Clarendon Road  
Leeds

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West Yorkshire  
LS2 9JT

**Contact:** Professor Andrew Mullis

**Phone:** +44 (0) 113 343 2426

**E-mail:** [A.M.Mullis@Leeds.ac.uk](mailto:A.M.Mullis@Leeds.ac.uk)

**Website:** <http://www.engineering.leeds.ac.uk/imr/>

Research from the Institute is focussed on carbon, electroceramics, novel alloys and steels, photonic materials and textile structures. They support research into each material with microstructural, nanochemical and bulk physical property characterisation. Additionally, they model from product design through to fabrication.

## Aeronautical and Automotive Engineering, Loughborough University

**Location:** Faculty of Engineering  
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Leicestershire  
LE11 3TU

**Contact:** Professor Rui Chen

**Phone:** +44 (0) 1509 227 255

**E-mail:** [r.chen@lboro.ac.uk](mailto:r.chen@lboro.ac.uk)

**Website:** <http://www.lboro.ac.uk/departments/aae/research/groups/light-weight-structures>

The research activities of the department include those of the Lightweight Structures Research Sub-group, whose activities are those associated with the design of optimised lightweight metal and composite material structural systems for aerospace and automotive applications. The group has considerable strength and experience in the field of thin-walled metal and composite material structures with regard to analysis, numerical simulation, novel design, test and manufacture.

## EPSRC Centre for Innovative Manufacturing in Composites, University of Nottingham

**Location:** The University of Nottingham  
University Park  
Nottingham, NG7 2RD

**Contact:** Professor Andy Long, Faculty of Engineering

**Phone:** +44 (0) 115 951 3779

**E-mail:** [andrew.long@nottingham.ac.uk](mailto:andrew.long@nottingham.ac.uk)

**Website:** <http://www.epsrc-cimc.ac.uk/>

The Centre is developing the next generation of composite manufacturing processes based on low cost, short cycle times, efficiency and sustainability. EPSRC grant money received for the centre totalled £4.9million, with an additional £1.8million from industry partners.

The University is also home to the [Advanced Materials Research Group](#), a group that conducts research into materials processing, materials science and materials engineering. Their research themes include Nanotechnology, Surface engineering and thermal spraying, light metallic alloys and foams, novel photonic glasses and laser processing.

The [Polymer Composites Research Group](#) is also found at the University of Nottingham. They receive £1.5million of funding each year and conduct research into the manufacture and performance of advanced fibre reinforced composites. They have a holistic approach to composites, and look at the whole lifetime of the materials, from novel manufacturing processes, through materials characterisation to end-of-life recycling.

## School of Mechanical and Aerospace Engineering, Queen's University, Belfast

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**Location:** Queen's University  
Ashby Building  
Stanmillis Road,  
Belfast BT9 5AG  
**Phone:** +44 (0)28 9097 4147  
**E-mail:** [mech.aero@qub.ac.uk](mailto:mech.aero@qub.ac.uk)  
**Website:** <http://www.qub.ac.uk/schools/SchoolofMechanicalandAerospaceEngineering/>

The School has two research clusters whose research projects will be of interest. Their Advanced Materials and Processing Research Cluster concentrates on multidisciplinary research into the processing, modelling and development of high performance polymeric materials. They have experience in the fields of advanced extrusion, rotational moulding and thermoforming. A full list of the projects is available [here](#).

The second research cluster of interest is that of Aerospace and Manufacturing. Whilst research is geared towards aircraft and aerospace applications, there have been spin-offs from their research. Of particular note from [their list of projects](#) are Metallic Structures and Composites.

## Advanced Manufacturing Research Centre (AMRC), Sheffield University

**Location:** AMRC with Boeing  
Advanced Manufacturing Park  
Wallis Way  
Catcliffe  
Rotherham  
S60 5TZ  
**Phone:** +44 (0)114 222 1747  
**E-mail:** [enquiries@amrc.co.uk](mailto:enquiries@amrc.co.uk)  
**Website:** [www.amrc.co.uk](http://www.amrc.co.uk)

The AMRC works with manufacturing businesses, from global aerospace giants to local SMEs. They have over 60 member companies that each pay an annual fee to access their resources and expertise, and which help determine the research programme. Boeing is the founding partner and continues to play a key role in AMRC's development. AMRC also works with many other non member companies and institutions on individual research projects. The AMRC is a partner of the UK High Value Manufacturing Technology Innovation Centre, announced in March 2011. The AMRC opened a Knowledge Transfer Centre in 2012 and plans to open a Training Centre for advanced apprenticeships and higher training from autumn 2013

## Engineering Materials, Southampton University

**Location:** Engineering Sciences Unit  
Engineering and the Environment  
University of Southampton  
Southampton  
SO17 1BJ  
**Contact:** Sue Berger  
**Phone:** +44 (0) 238 059 2871  
**E-mail:** [engsci@soton.ac.uk](mailto:engsci@soton.ac.uk)  
**Website:** <http://www.soton.ac.uk/engineering/research/groups/engmats.page>

The Engineering Research Group's goal is to develop understanding of the physical processes and interactive mechanisms in materials that affect the performance of engineering systems. Their research includes looking at materials for automotive applications. They regularly collaborate with other research groups in the Engineering and Environment departments



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## Advanced Forming Research Centre (AFRC), University of Strathclyde

**Location:** Advanced Forming Research Centre  
85 Inchinnan Drive  
Inchinnan  
Renfrewshire  
PA4 9LJ  
**Phone:** +44 (0)141 534 5200  
**E-mail:** [info@afrc.org.uk](mailto:info@afrc.org.uk)  
**Website:** [www.strath.ac.uk/afrc/](http://www.strath.ac.uk/afrc/)

AFRC is a research facility supporting fundamental and applied research in forming and forging. It has cross-sectoral collaborative partnerships with both academic institutions and industrial companies. AFRC is a partner in the UK High Value Manufacturing Technology Innovation Centre, announced in March 2011. The AFRC also partners the University of Strathclyde's Design, Manufacture and Engineering Management Department, the Mechanical Engineering department and industrial manufacturing companies. The aims of this are to:

- Shorten the time between concept and product.
- Create high value, high integrity products.
- Offer growth and performance to business partners.

The Centre's research is focussed into the following areas:

- Metal forming processes, e.g. forging, pressing, super plastic forming etc.
- Primary techniques, e.g. plastic deformation and flow.
- Supporting technologies, e.g. heat treatment.
- Supply chain issues, e.g. materials quality and purity.
- Processes, e.g. die manufacture and lubricants.
- Design of tooling, e.g. modelling.

## Faculty of Engineering and Physical Sciences, University of Surrey

**Location:** University of Surrey  
Guildford  
Surrey  
GU2 7XH  
**Contact:** Mrs Anne-Marie Mason (Faculty Manager)  
**Phone:** +44 (0) 1483 683 088  
**E-mail:** [a.mason@surrey.ac.uk](mailto:a.mason@surrey.ac.uk)  
**Website:** <http://www.surrey.ac.uk/feps/index.htm>

One of the research themes at the Faculty goes into Advance Materials, Devices and Nanotechnology. Research in this theme is conducted at two University Institutes, the [Advance Technology Institute](#) and the [Surrey Materials Institute](#).

The former focuses on the functional materials for electronic and photonic devices, creating new materials for devices and circuits. The latter institution concentrates on structural materials and their mechanical, structural and thermodynamic properties. In this Institute, Civil and Chemical Engineers work alongside materials scientists and physicists on infrastructure and geotechnics, soft matter physics, interface science and engineering, surface phenomena and structural materials functionality.

## Warwick Manufacturing Group (WMG), Warwick University Premium Vehicle Lightweight Technologies

**Location:** WMG  
International Manufacturing Centre  
University of Warwick  
Coventry  
CV4 7AL  
**Contact:** Georgina Haslop

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**Phone:** +44 (0) 24 7657 3094  
**E-mail:** [g.haslop@warwick.ac.uk](mailto:g.haslop@warwick.ac.uk)  
**Website:** [www2.warwick.ac.uk/fac/sci/wmg/](http://www2.warwick.ac.uk/fac/sci/wmg/)

Within the WMG is the Materials and Manufacturing Group. Research interests of the group range from traditional materials engineering to cutting edge energy storage solutions. The group has collaborated with organisations of all sizes and has an annual research income of £3million. Core research themes for the group are:

- [Lightweight Structures and Systems.](#)
- [Multifunctional Materials.](#)
- [Sustainable Materials.](#)
- [Digital Lifecycle Management.](#)
- [Additive Layer Manufacturing.](#)
- [Industrial Electrochemistry.](#)

## Other Sources of Information and Support

### Longbridge Nanomaterials Centre - Materials Solution

**Location:** Unit 8, Great Western Business Park  
McKenzie Way  
Worcester  
WR4 9GN  
**Phone:** +44 (0)1905 732160  
**Website:** [www.materialssolutions.co.uk](http://www.materialssolutions.co.uk)

Materials Solutions is an applications centre for Advanced Materials, focused on rapid prototyping, net shape manufacturing and engineered thin films and structures. They are part funded by the TSB and Advantage West Midlands.

### Manufacturing Technology Centre (MTC), Coventry

**Location:** MTC Limited  
Antsy Park  
Coventry  
CV7 9JU  
**Phone:** +44 (0) 2476 701 600  
**Website:** <http://www.the-mtc.org/>

The MTC is a collaborative partnership between industry and Research and Technology Organisations (RTOs). Their focus is on applied research and industry engagement with an emphasis on technology transfer. Collaborative partners include a range of academic and industry bodies. They conduct research into the following areas:

- Assembly, Fabrication and Joining.
- High Integrity Fabrication.
- Net Shape Manufacture.
- Advanced Tooling and Fixturing.
- Intelligent automation.

### National Composites Centre, University of Bristol

**Location:** The National Composites Centre  
Feynman Way Central  
Bristol & Bath Science Park  
Emersons Green  
Bristol  
BS16 7FS  
**Contact:** [info@nccuk.com](mailto:info@nccuk.com)  
**Telephone:** 0117 370 7600  
**Website:** <http://nccuk.com/home>

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The National Composites Centre (NCC), brings together companies and enterprising academics to develop new technologies for the design and rapid manufacture of high-quality composite products. The combination of academic and business strengths aims to speed progress from laboratory, to design, to factory and finally to products. The 8500m<sup>2</sup> state-of-the-art NCC building opened in summer 2011 at SPark, the Bristol and Bath Science Park and forms part of the HVM Catapult.

## Knowledge Transfer Networks

Funded and overseen by the Technology Strategy Board, KTNs promote knowledge sharing through events, conferences, newsletters, on-line communities and projects. They are free to join. There are a number of KTNs that are of relevance to the automotive sector include the Transport, Materials and Electronics, Sensors and Photonics. All KTNs can be found via the Connect gateway at:

<https://ktn.innovateuk.org/web/guest/home>

## Regional Industry/Academia Matching Service

The following organisations offer to assist with finding the academic research skills, expertise and facilities to meet your business needs. They operate across all technology areas.

Northwest Innovation Network [www.nwin.org.uk](http://www.nwin.org.uk)

Innovation East Midlands [www.eminnovation.org.uk](http://www.eminnovation.org.uk)

Universities South West [www.universitiessouthwest.ac.uk](http://www.universitiessouthwest.ac.uk)

Interface Scotland [www.interface-online.org](http://www.interface-online.org)

Invest Northern Ireland [www.investni.com](http://www.investni.com)

## Manufacturing Advisory Service (MAS)

MAS is designed to help manufacturers streamline processes, reduce waste, become more energy efficient and generally improve the quality of their businesses. Services are accessed via an enquiry service available through:

- 08456589600
- <http://www.mymas.org/contact/contact-us>

## Manufacturing Technologies Association

**Location:** 62 Bayswater Road  
London  
W2 3PS

**E-mail:** <http://www.mta.org.uk/about-mta/contact>

**Telephone:** +44 (0) 20 7298 6400

**Website:** [www.mta.org.uk](http://www.mta.org.uk)

Key activities of the Association are:

- Representing engineering based manufacturing and supporting the advanced engineering sector through lobbying, media contact and networking.
- Providing relevant and specific industry intelligence.
- Encouraging talent through funding and support for workplace training and education initiatives in schools, colleges and universities.
- Delivering the UK's only major exhibition focused on manufacturing technologies – MACH (owned and organised by the MTA).

Membership of the MTA is open to companies involved with the manufacturing technologies sector and end users of such technology.

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The following table pulls together information pertaining to publically funded research and development projects. Information has been sourced from the Engineering and Physical Sciences Research Council (EPSRC), the Technology Strategy Board (TSB) and the European Framework Programme (FP7). More information on each can be found on the relevant websites:

- [EPSRC](#)
- [TSB](#)
- [FP7](#)

In the case of FP7 projects, values are expressed in €million.

This project list is under constant development as we strive to include more projects and information. Please note that the FP7 lists are not exhaustive, but an indication of the size and scope of the FP7 project portfolio in this area. SMMT would welcome any updates, additions or corrections to the list. Contributions should be emailed to Luke Hampton at [lhampton@smt.co.uk](mailto:lhampton@smt.co.uk).

FUNDER	PROJECT TITLE	Start	End	PROJECT CONTACT	ORGANISATION/ CONSORTIUM	DEPARTMENT	VALUE
EPSRC	<a href="#">A fundamental study of deformation mechanisms in advanced polycrystalline nickel-base superalloys</a>	09/70	08/10	<a href="#">Dr M Preuss</a>	<a href="#">The University of Manchester</a>	<a href="#">Materials</a>	£314,623
EPSRC	<a href="#">A Micro-Mechanistic Study of Oxygen-Diffusion-Assisted Crack Growth in a Polycrystalline Nickel-Based Superalloy</a>	11/07	11/10	<a href="#">Dr L Zhao</a>	<a href="#">University of Portsmouth</a>	<a href="#">Faculty of Technology</a>	£196,859
EPSRC	<a href="#">A new framework for hybrid through-process modelling, process simulation and optimisation in the metals industry</a>	01/08	12/12	<a href="#">Professor WM Rainforth</a>	<a href="#">University of Sheffield</a>	<a href="#">Materials Science and Engineering</a>	£4,517,374
EPSRC	<a href="#">A novel approach to nanoscale materials assembly using bioengineered spider silk fusion</a>	07/07	09/10	<a href="#">Professor C Perry</a>	<a href="#">Nottingham Trent University</a>	<a href="#">School of Science &amp; Technology</a>	£268,248

# Lightweight Vehicle and Powertrain Structures

	<a href="#">proteins: a generic materials approach</a>						
EPSRC	<a href="#">A Predictive Approach to Modelling Frictional Joint Performance (PAMFJP)</a>	10/07	09/11	<a href="#">Dr AV Olver</a>	<a href="#">Imperial College London</a>	<a href="#">Dept of Mechanical Engineering</a>	£430,570
EPSRC	<a href="#">A Predictive Approach to Modelling Frictional Joint Performance (PAMFJP)</a>	01/08	01/12	<a href="#">Professor D Nowell</a>	<a href="#">University of Oxford</a>	<a href="#">Engineering Science</a>	£380,917
EPSRC	<a href="#">A unified approach to predicting failure in composite structures with geometrical discontinuities</a>	03/07	09/10	<a href="#">Dr L Iannucci</a>	<a href="#">Imperial College London</a>	<a href="#">Dept of Aeronautics</a>	£374,360
EPSRC	<a href="#">Advanced Composites Centre for Innovation &amp; Science (ACCIS) Doctoral Training Centre</a>	10/09	13/18	<a href="#">Wisnom, Professor M</a>	<a href="#">University of Bristol</a>	<a href="#">Aerospace Engineering</a>	£7,130,174
EPSRC	<a href="#">Aerostructural Efficiency of Damage Tolerant Composites via Optimised Fibre Placement</a>	04/10	03/14	<a href="#">Dr R Butler</a>	<a href="#">University of Bath</a>	<a href="#">Mechanical Engineering</a>	£523,127
EPSRC	<a href="#">Aerostructural Efficiency of Damage Tolerant Composites via Optimised Fibre Placement</a>	06/10	05/14	<a href="#">Professor PM Weaver</a>	<a href="#">University of Bristol</a>	<a href="#">Aerospace Engineering</a>	£648,649
EPSRC	<a href="#">An integrated system of inferential measurement and control of polymer extrusion for self-tuning optimisation and response to disturbances</a>	10/08	31/12	<a href="#">Dr K Li</a>	<a href="#">Queen's University of Belfast</a>	<a href="#">Sch Mechanical and Aerospace Engineering</a>	£268,004
EPSRC	<a href="#">Bone and teeth as fibrous biological composites: in situ nano-mechanical investigations</a>	08/07	12/10	<a href="#">Dr AH Barber</a>	<a href="#">Queen Mary, University of London</a>	<a href="#">Engineering</a>	£235,856

# Lightweight Vehicle and Powertrain Structures

EPSRC	<a href="#">Coating Substitution for Reduced Environmental Impact (SUSCOAT)</a>	01/10	12/12	<a href="#">Dr A Leyland</a>	<a href="#">University of Sheffield</a>	<a href="#">Materials Science and Engineering</a>	£355,103
EPSRC	<a href="#">CRack Arrest and Self-Healing in COMPOSITE Structures (CRASHCOMPS)</a>	12/08	11/12	<a href="#">Dr ES Greenhalgh</a>	<a href="#">Imperial College London</a>	<a href="#">Dept of Aeronautics</a>	£627,742
EPSRC	<a href="#">CRack Arrest and Self-Healing in COMPOSITE Structures (CRASHCOMPS)</a>	01/09	12/12	<a href="#">Professor IP Bond</a>	<a href="#">University of Bristol</a>	<a href="#">Aerospace Engineering</a>	£594,946
EPSRC	<a href="#">Design of polymer-clay nanocomposites via control of phase behaviour</a>	10/07	11/10	<a href="#">Dr MB Sweatman</a>	<a href="#">University of Strathclyde</a>	<a href="#">Chemical and Process Engineering</a>	£673,438
EPSRC	<a href="#">Development of Bulk Nanostructured Aluminium Alloys for High Strength Applications</a>	07/07	06/11	<a href="#">Professor P Grant</a>	<a href="#">University of Oxford</a>	<a href="#">Materials</a>	£915,510
EPSRC	<a href="#">Dual Source Pulsed Plasmas for the Production of Ultra-High Performance Coatings</a>	05/07	11/10	<a href="#">Professor NStJ Braithwaite</a>	<a href="#">Open University</a>	<a href="#">Physics and Astronomy</a>	£41,990
EPSRC	<a href="#">Dual Source Pulsed Plasmas for the Production of Ultra-High Performance Coatings</a>	05/07	11/10	<a href="#">Professor JW Bradley</a>	<a href="#">University of Liverpool</a>	<a href="#">Electrical Engineering and Electronics</a>	£270,135
EPSRC	<a href="#">Effective Structural Unit Size in Polycrystals: Formation, Quantification and Micromechanical Behaviour</a>	10/07	09/11	<a href="#">Dr D Dye</a>	<a href="#">Imperial College London</a>	<a href="#">Materials</a>	£139,840
EPSRC	<a href="#">Effective Structural Unit Size in Polycrystals: Formation, Quantification and Micromechanical</a>	10/07	09/10	<a href="#">Professor M R Bache</a>	<a href="#">Swansea University</a>	<a href="#">School of Engineering</a>	£281,517

# Lightweight Vehicle and Powertrain Structures

	<a href="#">Behaviour</a>						
EPSRC	<a href="#">Effective Structural Unit Size in Polycrystals: Formation, Quantification and Micromechanical Behaviour</a>	10/07	03/11	<a href="#">Dr M Preuss</a>	<a href="#">The University of Manchester</a>	<a href="#">Materials</a>	£370,367
EPSRC	<a href="#">Effective Structural Unit Size in Polycrystals: Formation, Quantification and Micromechanical Behaviour</a>	02/08	01/11	<a href="#">Professor I Jones</a>	<a href="#">University of Birmingham</a>	<a href="#">Metallurgy and Materials</a>	£287,439
EPSRC	<a href="#">Effective Structural Unit Size in Polycrystals: Formation, Quantification and Micromechanical Behaviour</a>	10/07	03/11	<a href="#">Dr AJ Wilkinson</a>	<a href="#">University of Oxford</a>	<a href="#">Materials</a>	£375,473
EPSRC	<a href="#">Enhanced Ultrasonic 3D Characterisation Of Composites Using Full Matrix Capture Of Array Data</a>	03/10	08/13	<a href="#">Dr PD Wilcox</a>	<a href="#">University of Bristol</a>	<a href="#">Mechanical Engineering</a>	£224,140
EPSRC	<a href="#">Enhanced Ultrasonic 3D Characterisation Of Composites Using Full Matrix Capture Of Array Data</a>	02/10	01/13	<a href="#">Professor RE Challis</a>	<a href="#">University of Nottingham</a>	<a href="#">Div of Electrical Systems and Optics</a>	£226,324
EPSRC	<a href="#">EPSRC Centre for Innovative Manufacturing in Composites</a>	07/11	06/16	<a href="#">Long, Professor A</a>	<a href="#">University of Nottingham</a>	<a href="#">Materials, Mechanics and Structures</a>	£5,866,584
EPSRC	<a href="#">Equipment for Multiple Projects: Testing and Visualization for Aerospace Research</a>	03/08	03/11	<a href="#">Dr R Butler</a>	<a href="#">University of Bath</a>	<a href="#">Mechanical Engineering</a>	£274,261

# Lightweight Vehicle and Powertrain Structures

EPSRC	<a href="#">Fatigue Crack Growth in Complex Residual Stress Fields due to Surface Treatment and Foreign Object Damage under Simulated Flight Cycles</a>	10/07	09/10	<a href="#">Professor P Withers</a>	<a href="#">The University of Manchester</a>	<a href="#">Materials</a>	£88,855
EPSRC	<a href="#">Fatigue Crack Growth in Complex Residual Stress Fields due to Surface Treatment and Foreign Object Damage under Simulated Flight Cycles</a>	12/07	06/11	<a href="#">Professor J Tong</a>	<a href="#">University of Portsmouth</a>	<a href="#">Faculty of Technology</a>	£277,947
EPSRC	<a href="#">Fibre waviness defects in composite structures</a>	05/09	04/12	<a href="#">Dr K Potter</a>	<a href="#">University of Bristol</a>	<a href="#">Aerospace Engineering</a>	£250,921
EPSRC	<a href="#">Fibre waviness defects in composite structures</a>	05/09	04/12	<a href="#">Dr M Sutcliffe</a>	<a href="#">University of Cambridge</a>	<a href="#">Engineering</a>	£259,705
EPSRC	<a href="#">Fibre waviness defects in composite structures</a>	05/09	04/12	<a href="#">Dr K Potter</a>	<a href="#">University of Bristol</a>	<a href="#">Aerospace Engineering</a>	£250,921
EPSRC	<a href="#">Fibre waviness defects in composite structures</a>	05/09	04/12	<a href="#">Dr M Sutcliffe</a>	<a href="#">University of Cambridge</a>	<a href="#">Engineering</a>	£259,705
EPSRC	<a href="#">Friction Joining - Low Energy Manufacturing for Hybrid Structures in Fuel Efficient Transport Applications</a>	07/09	09/12	<a href="#">Professor P Prangnell</a>	<a href="#">The University of Manchester</a>	<a href="#">Materials</a>	£406,441
EPSRC	<a href="#">Friction Joining - Low Energy Manufacturing for Hybrid Structures in Fuel Efficient Transport Applications</a>	04/09	09/12	<a href="#">Dr H R Shercliff</a>	<a href="#">University of Cambridge</a>	<a href="#">Engineering</a>	£183,316
EPSRC	<a href="#">FULL-FIELD DATA-RICH EXPERIMENTAL APPROACHES</a>	09/09	08/12	<a href="#">Professor J Barton</a>	<a href="#">University of Southampton</a>	<a href="#">School of Engineering Sciences</a>	£380,638



# Lightweight Vehicle and Powertrain Structures

	<a href="#">TO EXPLAIN COMPOSITE MATERIAL AND STRUCTURAL PERFORMANCE AND ITS DAMAGE TOLERANCE</a>						
EPSRC	<a href="#">G8-2012 Material Efficiency - A first step toward sustainable manufacture</a>	01/13	12/15	<a href="#">Potter, Professor K</a>	<a href="#">Bristol University</a>	<a href="#">Aerospace Engineering</a>	£218,533
EPSRC	<a href="#">Heterogeneous Mechanics in Hexagonal Alloys across Length and Time Scales</a>	05/13	05/18	<a href="#">Dunne, Professor FP</a>	<a href="#">Imperial College London</a>	<a href="#">Department of Materials</a>	£4,979,741
EPSRC	<a href="#">High Performance Ductile Composite Technology (HiPerDuCT)</a>	07/11	06/17	<a href="#">Wisnom, Professor M</a>	<a href="#">University of Bristol</a>	<a href="#">Aerospace Engineering</a>	£6,371,839
EPSRC	<a href="#">Hybrid Electrospun Fibres from Biomass-Based Carbon Nanostructures</a>	10/08	10/12	<a href="#">Dr S Eichhorn</a>	<a href="#">The University of Manchester</a>	<a href="#">Materials</a>	£411,940
EPSRC	<a href="#">Impact and erosion resistant coatings - double auto-expanding polymer foam and hybrid CVD/PVD laminated hierarchical multilayered approaches</a>	07/09	06/13	<a href="#">Professor RJK Wood</a>	<a href="#">University of Southampton</a>	<a href="#">School of Engineering Sciences</a>	£635,797
EPSRC	<a href="#">Improving Survivability of Structures to Impact and Blast Loadings</a>	09/09	08/12	<a href="#">Dr L Iannucci</a>	<a href="#">Imperial College London</a>	<a href="#">Dept of Aeronautics</a>	£1,171,663
EPSRC	<a href="#">Industrial Doctorate Centre in Composites Manufacture</a>	10/12	03/19	<a href="#">Partridge, Professor IK</a>	<a href="#">Bristol University</a>	<a href="#">Aerospace Engineering</a>	£3,926,972

# Lightweight Vehicle and Powertrain Structures

EPSRC	<a href="#">In-situ shock performance investigation of lightweight ceramic nanocomposites</a>	08/10	01/14	<a href="#">Professor Y Zhu</a>	<a href="#">University of Exeter</a>	<a href="#">Engineering Computer Science and Maths</a>	£397,138
EPSRC	<a href="#">In-situ shock performance investigation of lightweight ceramic nanocomposites</a>	10/09	03/13	<a href="#">Dr S Zhang</a>	<a href="#">University of Sheffield</a>	<a href="#">Materials Science and Engineering</a>	£132,475
EPSRC	<a href="#">In-situ shock performance investigation of lightweight ceramic nanocomposites</a>	08/10	01/14	<a href="#">Zhu, Professor Y</a>	<a href="#">University of Exeter</a>	<a href="#">College of Engineering, Mathematics and Physical Sciences</a>	£397,138
EPSRC	<a href="#">Investigation of alternative drag-reduction strategies in turbulent boundary layers by using wall forcing</a>	12/09	11/12	<a href="#">Dr DA Lockerby</a>	<a href="#">University of Warwick</a>	<a href="#">Sch of Engineering</a>	£366,047
EPSRC	<a href="#">Layer-wise dynamic stiffness formulation for free vibration analysis of multilayered composite structures</a>	09/10	08/12	<a href="#">Professor JR Banerjee</a>	<a href="#">City University</a>	<a href="#">Sch of Engineering and Mathematical Sci</a>	£213,434
EPSRC	<a href="#">Layer-wise dynamic stiffness formulation for free vibration analysis of multilayered composite structures</a>	09/10	08/12	<a href="#">Professor JR Banerjee</a>	<a href="#">City University</a>	<a href="#">Sch of Engineering and Mathematical Sci</a>	£213,434
EPSRC	<a href="#">Lean Powertrain Development Tool (LPDev)</a>	09/05	08/10	<a href="#">Dr S Akehurst</a>	<a href="#">University of Bath</a>	<a href="#">Mechanical Engineering</a>	£249,657
EPSRC	<a href="#">Light alloys towards environmentally sustainable transport: 2nd generation solutions for advanced metallic systems (latest 2)</a>	07/10	09/16	<a href="#">Professor GE Thompson</a>	<a href="#">The University of Manchester</a>	<a href="#">Materials</a>	£5,730,884

# Lightweight Vehicle and Powertrain Structures

EPSRC	<a href="#">LIGHT ALLOYS TOWARDS ENVIRONMENTALLY SUSTAINABLE TRANSPORT: 2nd GENERATION SOLUTIONS FOR ADVANCED METALLIC SYSTEMS (LATEST2)</a>	07/10	01/16	<a href="#">Thompson, Professor GE</a>	<a href="#">The University of Manchester</a>	<a href="#">Materials</a>	£5,762,121
EPSRC	<a href="#">Materials World Network: Dynamics of Polymer Nanocomposites</a>	02/11	11/12	<a href="#">Clarke, Professor N</a>	<a href="#">University of Sheffield</a>	<a href="#">Physics and Astronomy</a>	£188,960
EPSRC	<a href="#">Microstructural characterisation of complex materials using advanced Scanning Electron Microscope (SEM) techniques</a>	06/07	12/10	<a href="#">Dr M Charalambides</a>	<a href="#">Imperial College London</a>	<a href="#">Dept of Mechanical Engineering</a>	£83,940
EPSRC	<a href="#">Modern metals processing: transfer of knowledge and core skills to new and emerging technologies</a>	08/07	07/12	<a href="#">Professor WM Rainforth</a>	<a href="#">University of Sheffield</a>	<a href="#">Materials Science and Engineering</a>	£871,509
EPSRC	<a href="#">NDT for high-value manufacturing of composites</a>	04/13	07/18	<a href="#">Smith, Dr R A</a>	<a href="#">Bristol University</a>	<a href="#">Mechanical Engineering</a>	£1,348,886
EPSRC	<a href="#">New Materials and Devices for Photovoltaic Applications</a>	05/10	05/15	<a href="#">Professor TS Jones</a>	<a href="#">University of Warwick</a>	<a href="#">Chemistry</a>	£1,288,566
EPSRC	<a href="#">New Portfolio Partnership - Light alloys for Environmentally Sustainable Transport</a>	04/05	09/10	<a href="#">Professor GE Thompson</a>	<a href="#">The University of Manchester</a>	<a href="#">Materials</a>	£6,725,687
EPSRC	<a href="#">Novel co-blended polymer matrix systems for fire resistant structural marine composites</a>	07/10	01/14	<a href="#">Kandola, Professor B</a>	<a href="#">University of Bolton</a>	<a href="#">Institute for Materials Research and Innovation</a>	£427,079
EPSRC	<a href="#">Novel co-blended polymer matrix systems for fire resistant structural marine composites</a>	07/11	01/15	<a href="#">Shenoi, Professor RA</a>	<a href="#">University of Southampton</a>	<a href="#">Faculty of Engineering and the Environment</a>	£348,336
EPSRC	<a href="#">PLATFORM GRANT RENEWAL:</a>	06/06	05/11	<a href="#">Professor</a>	<a href="#">Cranfield University</a>	<a href="#">Sch of Applied Sciences</a>	£426,657

# Lightweight Vehicle and Powertrain Structures

	<a href="#">Nanoscale Multifunctional Ferroic Materials and Devices</a>			<a href="#">JR Nicholls</a>			
EPSRC	<a href="#">Platform Grant: Structural Acoustics</a>	11/06	10/11	<a href="#">Professor B Mace</a>	<a href="#">University of Southampton</a>	<a href="#">Inst of Sound and Vibration Research</a>	£880,472
EPSRC	<a href="#">Platform: Fracture, Fatigue and Durability of Advanced Alloys and Composites for High Performance Applications</a>	09/05	02/11	<a href="#">Professor P Bowen</a>	<a href="#">University of Birmingham</a>	<a href="#">Metallurgy and Materials</a>	£431,488
EPSRC	<a href="#">Platform: Textile Composites - Engineering Science and its Applications</a>	04/09	04/13	<a href="#">Professor A Long</a>	<a href="#">University of Nottingham</a>	<a href="#">Sch of Mech Materials Manuf Eng Mgt</a>	£832,193
EPSRC	<a href="#">Polymer nanocomposites for light armour applications</a>	11/09	10/13	<a href="#">Dr IA Ashcroft</a>	<a href="#">Loughborough University</a>	<a href="#">Sch of Mechanical and Manufacturing Eng</a>	£657,839
EPSRC	<a href="#">Predicting scatter in the ductile to brittle transitional fracture in steels</a>	10/09	09/11	<a href="#">Dr A Shterenlikht</a>	<a href="#">University of Bristol</a>	<a href="#">Mechanical Engineering</a>	£98,140
EPSRC	<a href="#">Probabilistic Assessment of Fatigue Delamination Growth in Fibre Reinforced Composite Laminates</a>	05/10	07/11	<a href="#">Dr G Allegri</a>	<a href="#">University of Bristol</a>	<a href="#">Aerospace Engineering</a>	£100,637
EPSRC	<a href="#">Processing of polymer nanocomposites</a>	08/07	05/11	<a href="#">Professor PD Coates</a>	<a href="#">University of Bradford</a>	<a href="#">Sch of Engineering Design and Technology</a>	£550,776
EPSRC	<a href="#">Regenerated Composite Value Reinforcement (ReCoVeR)</a>	11/11	03/15	<a href="#">Thomason, Professor JL</a>	<a href="#">University of Strathclyde</a>	<a href="#">Mechanical &amp; Aerospace Engineering</a>	£468,012
EPSRC	<a href="#">Resin development for fast cycle time composite processing</a>	10/07	01/11	<a href="#">Professor R Day</a>	<a href="#">The University of Manchester</a>	<a href="#">Materials</a>	£437,886
EPSRC/T SB	<a href="#">SAMULET Project 5: Processing Advanced Materials (Resubmission)</a>	11/09	10/12	<a href="#">Dr R Young</a>	<a href="#">Loughborough University</a>	<a href="#">Sch of Mechanical and Manufacturing Eng</a>	£205,548
EPSRC/T SB	<a href="#">SAMULET Project 5: Processing Advanced Materials</a>	11/09	04/13	<a href="#">Professor RC Reed</a>	<a href="#">University of Birmingham</a>	<a href="#">Metallurgy and Materials</a>	£828,642

# Lightweight Vehicle and Powertrain Structures

	<a href="#">(Resubmission)</a>						
EPSRC/T SB	<a href="#">SAMULET Project 5: Processing Advanced Materials (Resubmission)</a>	06/09	05/12	<a href="#">Professor K Ridgway</a>	<a href="#">University of Sheffield</a>	<a href="#">Advanced Manufacturing Res Centre Boeing</a>	£296,425
EPSRC/T SB	<a href="#">SAMULET Project 5: Processing Advanced Materials (Resubmission)</a>	07/09	06/12	<a href="#">Professor JP Scanlan</a>	<a href="#">University of Southampton</a>	<a href="#">School of Engineering Sciences</a>	£175,481
EPSRC/T SB	<a href="#">SAMULET Project 5: Processing Advanced Materials (Resubmission)</a>	02/10	01/13	<a href="#">Dr A Rosochowski</a>	<a href="#">University of Strathclyde</a>	<a href="#">Design Manufacture and Engineering Man</a>	£422,057
EPSRC	<a href="#">SHIELD - Sustainable High Energy Absorbing Lightweight Material Development</a>	06/09	09/12	<a href="#">Dr R Brooks</a>	<a href="#">University of Nottingham</a>	<a href="#">Sch of Mech Materials Manuf Eng Mgt</a>	£144,900
EPSRC	<a href="#">Smart Hybrid Automotive Panel Engineering (SHAPE)</a>	09/10	02/12	<a href="#">Professor RJ Dashwood</a>	<a href="#">University of Warwick</a>	<a href="#">Sch of Engineering</a>	£171,810
EPSRC	<a href="#">Smart Materials - Designing for Functionality</a>	10/10	04/12	<a href="#">Professor G McHale</a>	<a href="#">Nottingham Trent University</a>	<a href="#">School of Science &amp; Technology</a>	£202,311
EPSRC	<a href="#">SMiths Aerospace Research and Technology Partnership on COMPosites (SMARTCOMP)</a>	01/06	12/10	<a href="#">Professor M Wisnom</a>	<a href="#">University of Bristol</a>	<a href="#">Aerospace Engineering</a>	£1,093,259
EPSRC	<a href="#">SMiths Aerospace Research and Technology Partnership on COMPosites (SMARTCOMP)</a>	02/06	01/11	<a href="#">Professor P Grant</a>	<a href="#">University of Oxford</a>	<a href="#">Materials</a>	£268,677
EPSRC	<a href="#">Step change material efficiency for steel and aluminium.</a>	01/09	12/13	<a href="#">Dr JM Allwood</a>	<a href="#">University of Cambridge</a>	<a href="#">Engineering</a>	£1,387,360

# Lightweight Vehicle and Powertrain Structures

EPSRC	<a href="#">Structural control of Ti alloys for high strength, high toughness</a>	11/07	04/11	<a href="#">Professor X Wu</a>	<a href="#">University of Birmingham</a>	<a href="#">Metallurgy and Materials</a>	£395,747
EPSRC	<a href="#">Structural control of Ti alloys for high strength, high toughness</a>	11/07	04/11	<a href="#">Professor X Wu</a>	<a href="#">University of Birmingham</a>	<a href="#">Metallurgy and Materials</a>	£395,747
EPSRC	<a href="#">Sustainable Materials - A Global Challenge</a>	10/06	10/11	<a href="#">Dr KEA Kirwan</a>	<a href="#">University of Warwick</a>	<a href="#">Sch of Engineering</a>	£1,067,483
EPSRC	<a href="#">Sustainable Plastics: Catalytic Reactions with Renewable Resources</a>	10/05	10/11	<a href="#">Dr CK Williams</a>	<a href="#">Imperial College London</a>	<a href="#">Dept of Chemistry</a>	£304,350
EPSRC	<a href="#">Tailored composites for tuned deformation response to unsteady fluid loading</a>	02/11	01/14	<a href="#">Dr SW Boyd</a>	<a href="#">University of Southampton</a>	<a href="#">School of Engineering Sciences</a>	£424,754
EPSRC	<a href="#">Theory and Application of Inerters for Mechanical Control</a>	09/08	08/11	<a href="#">Professor M Smith</a>	<a href="#">University of Cambridge</a>	<a href="#">Engineering</a>	£290,247
EPSRC	<a href="#">Towards Affordable, Closed-Loop Recyclable Future Low Carbon Vehicle Structures - TARF-LCV</a>	12/11	11/15	<a href="#">Fan, Professor Z</a>	<a href="#">Brunel University</a>	<a href="#">Ctr for Advanced Solidification Tech</a>	£4,221,482
EPSRC	<a href="#">Towards Affordable, Closed-Loop Recyclable Future Low Carbon Vehicle Structures - TARF-LCV</a>	12/11	11/15	<a href="#">Fan, Professor Z</a>	<a href="#">Brunel University</a>	<a href="#">Centre for Advanced Solidification</a>	£4,221,482
EPSRC	<a href="#">Understanding and Improving Ceramic Armour Materials</a>	09/09	02/13	<a href="#">Professor J Binner</a>	<a href="#">Loughborough University</a>	<a href="#">Materials</a>	£407,913
EPSRC	<a href="#">Understanding and Improving Ceramic Armour Materials</a>	08/09	01/13	<a href="#">Dr RI Todd</a>	<a href="#">University of Oxford</a>	<a href="#">Materials</a>	£486,796
EPSRC	<a href="#">Upcycling of Light Alloy by Rheoforming Scrap (ULARS)</a>	01/07	03/10	<a href="#">Professor Z Fan</a>	<a href="#">Brunel University</a>	<a href="#">Ctr for Advanced Solidification Tech</a>	£411,319
TSB	Affordable COMPosites for Lightweight Car StructurEs (ACOMPLICE)	Not started	Not started	dfoulkes@a cg.co.uk	Advanced Composites Group Limited, Aston Martin Lagonda Limited, ABB Limited, Delta Motorsport		£0.00

# Lightweight Vehicle and Powertrain Structures

					Limited, Pentangle-Engineering Services Limited		
TSB	<a href="#">Aluminium Lattice Structures via Additive Manufacturing</a>	Not started	Not started	phil.reeves@econolyst.co.uk	Econolyst Limited, Alcon Components Limited, Axon Automotive Limited, Delcam PLC, DELPHI Limited, MTT Technologies Limited, Loughborough University		£1,803,720.00
TSB	Aluminium Matrix Composite Materials for vehicle Weight Reduction	01/09/2010	28/02/2013	nhutt1@jaguarlandrover.com	Jaguar Cars Limited, Composite Metal Technology Limited, Antich & Sons Limited		£920,656.00
TSB	<a href="#">Axon 60</a>	01/09/2008	31/05/2011	<a href="mailto:cousins@axonautomotive.com">cousins@axonautomotive.com</a>	Axon Automotive Ltd., Powertrain Technologies Limited, Scott Bader Company Limited, Warwick Manufacturing Group, Eccles Tooling Limited, Cranfield Innovative Manufacturing		£24,750.00
TSB	Composite Ultra Lightweight Automotive Suspension Components (CUSP)	01/12/2011	31/03/2014	cronin@axonautomotive.com	Axon Automotive Limited, Thyssenkrupp Automotive (UK) Limited, University of Warwick		£435,834.00
TSB	Dualcore Lightweight Engine	01/01/2012	30/06/2013	scarlin@jaguarlandrover.com	Jaguar Cars Limited, GE Precision Engineering Limited, Integral Powertrain Limited		£1,320,900.00
TSB	Light and Sound (LANDS)	Not started	Not started	penny.adams@tateandlylesugars.com	Tate & Lyle Limited, University of Brunel, Jaguar Cars Limited, Axon Recycling Limited, International Automotive Components Group Limited		£4,592,500.00

# Lightweight Vehicle and Powertrain Structures

TSB	Light weight 7.5 - 12 tonne Future Truck Chassis Concept	01/01/2012	31/12/2014	DavidHanhart@PACCAR.com	Leyland Trucks Limited, Sapa Profiles UK Limited, MI Technology Group Limited	£1,612,770.00
TSB	<a href="#">Lightweight Lead Acid Battery for Low Carbon Vehicles (LAB/LCV)</a>	01/04/2009	31/03/2012	david.hamp@twi.co.uk	TWI Limited (Industrial), SAFC Hitech Ltd, Fibre Technology Limited, MIRA Limited, Plurion Limited, TWI Limited - Academic	£23,218.00
TSB	Lightweight Ultra Low Emissions Delivery Van	01/09/2010	29/02/2012	lindsay.savage@intelligent-energy.com	Intelligent Energy Limited, Revolve Technologies Limited	£30,035.00
TSB	Lower Cost Light Weight Vehicles by Increasing the use of Post Consumer Aluminium Scrap.	01/07/2008	31/10/2011	<a href="mailto:tmurton@jaguarlandrover.com">tmurton@jaguarlandrover.com</a>	Jaguar Cars Limited, Novelis UK Limited, Zyomax Limited, Norton Aluminium Limited, Innoval Technology, Stadco Limited,BCAST (Brunel Centre for Advanced	£24,946.00
TSB	Magnesium Intensive BIW Structures for the Premium Automotive Sector	01/11/2011	31/10/2013	robert.gibson@morganmotor.co.uk	Morgan Motor Company Limited, Penso Limited, Magnesium Elektron, Coventry University, Luxfer Gas Cylinders Limited	£762,863.00
TSB	New Driving Posture Seat Design for Light Commercial Vehicles	01/10/2011	31/10/2012	gurinder.raia@ntc-europe.co.uk	Nissan Motor Manufacturing (UK) Limited, Loughborough University	£68,750.00
TSB	Plastic Net-forming of Metal (PLANET)	01/01/2010	31/12/2010	<a href="mailto:eoghan.mc_alpine@innovaltech.com">eoghan.mc_alpine@innovaltech.com</a>	Innoval Technology Limited, Jaguar Cars Limited, University of Warwick, Corus Group PLC, Plastic Amnium Automotive Limited, SABIC UK Petrochemicals	£196,631.00



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TSB	Pushing the Boundaries of Affordable Low Weight Vehicle Structures	01/12/2011	30/11/2012	dyer@axonautomotive.com	Axon Automotive Limited, Scott Bader Company Limited		£75,000.00
TSB	Sustainable lightweight low cost battery systems for extended life cycles (EV-Lite)	Not started	Not started	clive.hickman@the-mtc.org	The Manufacturing Technology Centre, Unipart Group Limited, R&D Vehicle Systems Limited, BBIG Limited, Loughborough University, CENEX		£1,978,070.00
FP	<a href="#">3D-LIGHTRANS: Large scale manufacturing technology for high-performance lightweight 3D multifunctional composites</a>	04/11	03/15	Mr Felix SCHROPFER	<a href="http://www.ait.ac.at/">http://www.ait.ac.at/</a>	18 partners incl. NW Textiles Network Ltd, Bentley Motors	5.2
FP	<a href="#">AC-DC: Automotive chassis development for 5-day cars</a>	10/06	09/10	Mr Horst KORNEMANN		20 partners incl. Volkswagen AG, Continental	7.0
FP	<a href="#">Advanced Electric Vehicle Architectures</a>	12/10	05/13	Mr Michael LESEMAN	<a href="http://www.rwth-aachen.de">www.rwth-aachen.de</a>	7 partners incl. Volkswagen AG, Continental, Fiat, Idiada Auto tech	2.9
FP	<a href="#">AEROMUCO: Aerodynamic surfaces by advanced multifunctional coatings</a>	01/11	12/13	Mr Werner Lang	<a href="http://www.eads.net">www.eads.net</a>	12 partners incl. University of Limerick, Dublin Institute of Technology	3.7
FP	<a href="#">ALASCA: Advanced lattice structures for composite airframes</a>	12/10	11/13	Mr Michael Renker	<a href="http://www.dlr.de">www.dlr.de</a>	12 partners incl. Leeds Uni, Airbus	1.3
FP	<a href="#">ALIVE: Advanced High Volume Affordable Lightweighting for Future Electric Vehicles</a>	10/12	09/16	Jan HOFFMANN	<a href="http://www.volkswagen.de/de.html">http://www.volkswagen.de/de.html</a>	23 partners inc. VW, Fundacion Cidaut, Centre Recherche Fiat	7.6
FP	<a href="#">ASPIRATE: Increase of productivity, safety, greenness and</a>	06/09	05/11	Mr Bilbatua	<a href="http://www.ideko.es">www.ideko.es</a>	6 partners incl. Zubiola S. Coop	0.79

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	<a href="#">cleanliness in the machining of carbon fiber reinforced composites</a>						
FP	<a href="#">CEMCAST: Centre of Excellence for Modern Composites Applied in Aerospace and Surface Transport Infrastructure</a>	04/10	03/13	Dr Tomasz Sadowski	<a href="http://www.pollub.pl">http://www.pollub.pl</a>	No other partners listed	2.55
FP	<a href="#">CERFAC: Cost effective reinforcement of fastener areas in composites</a>	10/10	03/14	Dr Bertrand Herry	<a href="http://www.cenaero.be">www.cenaero.be</a>	15 partners incl. Biteam AB, EADS Deutschland, Stuttgart Uni	4.5
FP	<a href="#">COMPOLIGHT: Rapid manufacturing of lightweight metal components</a>	11/08	10/11	Mr Olivier Stephane JAY	<a href="http://www.teknologisk.dk">www.teknologisk.dk</a>	12 partners incl. Dansk Teknologisk Institut Forening, Marcam Engineering, Open Engineering	3.5
FP	<a href="#">DE-LIGHT TRANSPORT: Developing lightweight modules for transport systems featuring efficient production &amp; lifecycle benefits at structural &amp; functional integrity using risk based design</a>	11/06	01/10	Mr Thomas Schluter	<a href="http://www.cmt-net.org">www.cmt-net.org</a>	19 partners incl. Centre of Maritime Technologies E.V., Balance technology Consulting GMBH, Bombardier Transportation UK	2.5
FP	<a href="#">E3CAR: Nanoelectronics for an electric vehicle.</a>	03/09	03/12	Reiner John	<a href="mailto:reiner.john@infineon.com">reiner.john@infineon.com</a>	33 partners incl. CR Fiat, Audi, Think	21.4
FP	<a href="#">ECOSHELL: Development of new light high performance environmentally benign composites made of bio-materials and bio-resins for electric car application</a>	01/11	09/13	Mr Alain DE LARMINAT	<a href="http://www.citi-technologies.com">http://www.citi-technologies.com</a>	10 partners incl. GRM Consulting Ltd, Cranfield Uni.	2.8
FP	<a href="#">ELECTRICAL: Novel aeronautical multifunctional composite structures with bulk electrical</a>	10/10	09/13	Mrs Nerea Markaide	<a href="http://www.inasmet.es">www.inasmet.es</a>	14 partners incl. Short Brothers plc, Advanced Composites Group Ltd,	2.9

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	<a href="#">conductivity and self-sensing capabilities</a>					Airbus	
FP	<a href="#">E-LIGHT: Advanced structural lightweight architectures for electric vehicles</a>	01/11	12/13	Ms. Fernandez Pera	<a href="http://www.cidaut.es">www.cidaut.es</a>	7 partners incl. Sheffield Uni, Ricardo,	2.1
FP	<a href="#">EMBROIDERY: Development of energy efficient, lightweight composite parts and tolling based on Tailored Fibre Placement and self heating technology</a>	01/11	12/12	Mr Ricardo MEZZACA SA	<a href="http://www.inasmet.es">www.inasmet.es</a>	9 partners incl. Stuttgart University, Mandiola Composites	1.1
FP	<a href="#">ENCOMB: Extended non-destructive testing of composite bonds</a>	11/10	04/14	Mr Christoph SCHULTE	<a href="http://www.fraunhofer.de">www.fraunhofer.de</a>	14 partners incl. A2 Technologies Ltd, Airbus, Uni of Bristol	4.2
FP	<a href="#">ENLIGHT</a>	10/12	09/16	Maximilian STEIERT		21 partners inc. FRAUNHOFER-GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG , RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN, CENTRO RICERCA FIAT SCPA	7.1
FP	<a href="#">ESPRIT: Resource-efficient self-reinforced plastic materials and processing</a>	10/08	03/12	Mr Gordon Bishop	<a href="http://www.netcomposites.com">www.netcomposites.com</a>	13 partners incl. Promolding BV, Fact Future Advanced Composites & Technology GMBH	3.99

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FP	<a href="#">EVOLUTION: The Electric Vehicle revOLUTION enabled by advanced materials highly hybridized into lightweight components for easy integration and dismantling providing a reduced life cycle cost logic</a>	11/12	10/16	Lone Varn JOHANNSEN	<a href="http://www.aau.dk/">http://www.aau.dk/</a>	Waiting for additional information	8.9
FP	<a href="#">FIBRECHAIN: Integrated Process Chain for Automated and Flexible Production of Fibre-Reinforced Plastic Products</a>	06/11	05/14	Ms Andrea Zeumann	<a href="http://www.fraunhofer.de">www.fraunhofer.de</a>	17 partners incl. TWI Ltd, Crompton Technology Group Ltd	6.5
FP	<a href="#">FIRE-RESIST: Developing novel fire-resistant high performance composites</a>	02/11	01/15	Ms Nicola Dolman	<a href="http://www.newcastle.ac.uk">www.newcastle.ac.uk</a>	18 partners incl. Univ of Newcastle upon Tyne, Advanced Composites Group Ltd, Bombardier Transportation UK Ltd	5.3
FP	<a href="#">FUTURA: Multi-functional materials and production technologies</a>	01/07	12/10	Dr. Karl-Heinz Fueller, Daimler	<a href="mailto:karl-heinz.fueller@daimler.com">karl-heinz.fueller@daimler.com</a>	17 partners incl. Porsche, Sika, Renault, Novelis, BTU-Cottbus	4.2
FP	<a href="#">HCV: Hybrid Commercial Vehicle</a>	01/10	12/13	Mr Pontus Enhager	<a href="http://www.volvo.com">www.volvo.com</a>	19 partners incl. Volvo Technology AB, Robert Bosch GMBH, DAF Trucks	9.9
FP	<a href="#">HIP: Development of low-cost, lightweight Highly Insulated Polymers for refrigerated transport, heating and cooling installations</a>	10/10	09/13	Mr Ralph Bradley	<a href="http://www.tica-acad.co.uk">www.tica-acad.co.uk</a>	11 partners incl. Thermal Insulation Contractors Association, Durham Uni, Baxi Heating UK	1.9
FP	<a href="#">HI-WI: Materials and drives for high and wide efficiency electric powertrains</a>	12/10	11/13	Ms Renata Schaeffer	<a href="http://www.cam.ac.uk">www.cam.ac.uk</a>	7 partners incl. Cambridge Uni, Sheffield Uni, Siemens AG	2.4

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FP	<a href="#">INMA: Innovative manufacturing of complex Ti sheet aeronautical components</a>	09/10	02/14	Ms Naiara INSAUSTI	<a href="http://www.fatronik.com">www.fatronik.com</a>	11 partners incl. Airbus, Liverpool Uni, TWI Ltd	2.9
FP	<a href="#">IVWSN: Intra-vehicular wireless sensor networks</a>	06/10	05/14	Ms Toprak	Koc University, Istanbul	No other partners listed	0.1
FP	<a href="#">LITEBUS :Modular lightweight sandwich bus concept</a>	10/06	09/09	Prof. António Augusto FERNANDES	<a href="http://www.inegi.pt">www.inegi.pt</a>	13 partners incl. Oxford Uni, Mauri Bus System	1.9
FP	<a href="#">MAENAD: Model-based analysis &amp; engineering of novel architectures for EVs</a>	09/10	09/13	Kjell Berg, Volvo	<a href="http://www.maenad.com">www.maenad.com</a>	12 partners incl. Volvo Technology, Delphi/Mecel, CEA LIST, KTH, Pulse-AR	2.4
FP	<a href="#">MAGFORGE: Magnesium forged components for structural lightweight transport applications</a>	07/06	12/09	Mr Giuseppe CORTESE		23 partners incl. Netherlands Organisation for Applied Scientific Research, Confederation of British Metalforming	2.9
FP	<a href="#">MATISSE: Modelling And Testing for Improved Safety of key composite Structures in alternatively powered vehicles</a>	10/12	09/15	Roland WOHLECKER	<a href="http://www.fka.de/">http://www.fka.de/</a>	11 partners inc. FKA, Technische Universität München, Chalmers Tekniska Högskola	2.2
FP	<a href="#">MECHAMODE: Mechanism based modelling of plastic deformation</a>	05/09	10/11	Ms Sabine Cramer	<a href="http://www.gkss.de">www.gkss.de</a>	GKSS Forschungszentrum Geesthacht	0.3
FP	<a href="#">MOMENTUM: Multidisciplinary research &amp; training on composite materials applications in transport modes</a>	12/05	05/10	Prof. Mark Robinson	<a href="http://www.ncl.ac.uk">www.ncl.ac.uk</a>	14 partners incl. Newcastle Uni, Palermo Uni, BAE Systems Surface Ships	3.75

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FP	<a href="#">M-RECT: Multi-scale reinforcement of semi-crystalline thermoplastic sheets and honeycombs</a>	04/10	04/14	Dr Alan Wood	<a href="http://www.victrex.com">www.victrex.com</a>	20 partners incl. Victrex Manufacturing Ltd, Bristol Uni, Volvo technology AB, Sheffield Uni, Cambridge Uni	4.7
FP	<a href="#">MUST: Multi-level protection of materials for vehicles by "smart" nanocontainers</a>	06/08	08/12	Lang Werner		20 partners incl. CR Fiat & Daimler	7.14
FP	<a href="#">MUSTMET: Development of multilayer structural thin metal sheets with conventional workability and superior overall performance</a>			Dr Giuseppe Ricciardi	<a href="http://popeye.itia.mi.cnr.it/iru/html/db/lo.html">http://popeye.itia.mi.cnr.it/iru/html/db/lo.html</a>	Accepted project: more details to come	
FP	<a href="#">MY-CAR: Flexible assembly processes for the car of the third millennium</a>	05/06	04/11	Mr Bery Hill	<a href="http://www.tech.volvo.se">www.tech.volvo.se</a>	14 partners incl. LMS-UniPATRAS, Daimler, Prima, HWH, CASP, Tunkers	6.0
FP	<a href="#">OIL-FREE POWERTRAIN: Development of powertrain and drive line components without liquid lubrication</a>	11/02	11/11	Dietmar Goericke	Verban Deutscher Maschinen	9 partners incl. Technische Universitaet Dresden	1.26
FP	<a href="#">POWERFUL: Powertrain for future light-duty vehicles</a>	01/10	12/13	Ms Dominique DIQUELOU	<a href="http://www.renault.com">www.renault.com</a>	18 partners incl. Renault, Fiat, Volkswagen	13.5
FP	<a href="#">ROV-E: Lightweight technologies for exploration rovers</a>	01/11	12/13	Ms Garbiñe ATXAGA	<a href="http://www.inasmet.es">www.inasmet.es</a>	6 partners incl. Southampton Uni, Advanced Composites Group Ltd,	2.2
FP	<a href="#">SECUREMETRO: Inherently secure blast resistant and fire safe metro vehicles</a>	01/10	12/12	Ms Nicola Dolman	<a href="http://www.newcastle.ac.uk">www.newcastle.ac.uk</a>	11 partners incl. Newcastle upon Tyne Uni, Bombardier Transport France, STAM SRL	2.7

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FP	<a href="#">SLC: Sustainable production technologies of emissions reduced light weight car concepts</a>	02/05	07/09	Dr. Martin Goede	<a href="http://www.volkswagen.de">www.volkswagen.de</a>	39 partners incl. Volkswagen, Renault SAS, Volvo Technology, Porsche Engineering Group, Materials Engineering Research Laboratory Ltd.	10.2
FP	<a href="#">STORAGE: Composite structural power storage for hybrid vehicles</a>	01/10	12/12	Mt Shaun Power	<a href="http://www.imperial.ac.uk">www.imperial.ac.uk</a>	9 partners incl. ETC Battery and Fuel Cells Sweden, Advanced Composites Group Ltd	2.5
FP	<a href="#">STORAGE: Composite structural power storage for hybrid vehicles</a>	01/10	12/12	Mr Shaun Power	<a href="http://www.imperial.ac.uk">www.imperial.ac.uk</a>	9 partners incl. Imperial College, ETC Battery and FuelCells, Volvo, Advanced Composites Group	2.5
FP	<a href="#">SUPLIGHT: Sustainable and efficient Production of Light weight solutions</a>	06/11	05/14	Dr Kristian Martinsen	<a href="http://www.sintef.no/manufacturing">www.sintef.no/manufacturing</a>	12 partners incl. RD&T Technology AB, Intercim SAS	3.1
FP	<a href="#">THROUGHLIFE: Development and proof of new approaches for through-life asset management based on next generation of materials and production technology</a>	04/11	03/14	Mr Thomas Witolla	<a href="http://www.meyerwerft.de">www.meyerwerft.de</a>	18 partners incl. Safinah Ltd, APC Composit AB, Balance Technology Consulting GMBH	2.5
FP	<a href="#">TRICONE: Tahts revolutionises industry and creates opportunities for narrow vehicle evolution</a>			Mr Dare Rosebery	A. Van Den Brink	Accepted project: more details to come	
FP	<a href="#">V-FEATHER: InnoVative Flexible Electric Transport</a>	07/12	10/15	Michael Bayes	<a href="http://www.cranfield.ac.uk">http://www.cranfield.ac.uk</a>	8 partners inc. Tuk Tuk Factory BV, Technische Universitaet Hamburg-	2.6

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						Harburg, Cleancarb SARL	
FP	<a href="#">WASIS: Composite fuselage section wafer design approach for safety increasing in worst case situations and joint minimizing</a>	01/11	06/14	Ms. Fernandez Pera	<a href="http://www.cidaut.es">www.cidaut.es</a>	12 partners incl. Materials Engineering Research Laboratory Ltd, Netcomposites Ltd	3.2
FP	<a href="#">WIDE-MOB: Building blocks concepts for efficient and safe multiuse urban electrical vehicles</a>	12/10	11/13	Dr Massimo CASALI	<a href="http://www.crf.it">http://www.crf.it</a>	7 partners incl. FIAT SCPA, Uni of Sheffield, Dupont	2.6