



Science Bridges China

www.sciencebridgeschina.com

中英科技桥



RCUK Bradford Science Bridges China



EPSRC Global Engagements Programme

‘People Bridges’ (人与人的桥梁) for Healthcare Technologies

a Strategic Platform creating Research and Innovation opportunities with China,
advancing Science & Innovation in Pharmaceutical Sciences & Advanced Materials
for drug discovery, drug delivery and medical technology



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INTRODUCTION

This booklet provides an outline, with some detailed information, of activities in our RCUK Science Bridges China Platform, including the EPSRC Global Engagements programme, which focuses on Advancing Science & Innovation in Pharmaceutical Sciences & Advanced Materials, for drug discovery, drug delivery and medical technology. This is a strategic priority area for UK-China co-operation. We have developed a successful, growing platform, extending collaborations to other UK & Chinese partners - universities, companies, hospitals and government agencies.

OUR APPROACH:

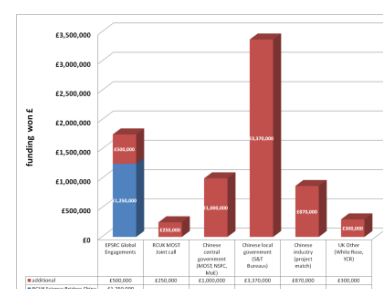
Investing in People

People are the key - we have established 'People Bridges' – working collaborations, developed trust and formed excellent research teams - with Research & Innovation Leaders and Young Researchers in 28 leading Chinese institutions and 6 UK universities (Bradford, Durham, Sheffield, Leeds, Nottingham and York).



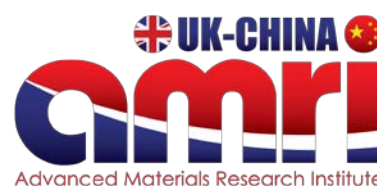
Growing the platform

Our original RCUK Science Bridges China £1.25m programme has achieved total cash support to date of £7.54m, and £1.5m in-kind support in the UK and China, which covers **44 research or innovation projects**. This represents a six-fold cash leverage in £ sterling (7.54/1.25). In terms of value (taking into account the relative cost of R&D in China, the leverage is $\sim 32.5/1.25 = 26$ fold. (see next page)



Creating a Community

We have established close working relationships, which has led to the formation of the UK-China Advanced Materials Research Institute (www.ukchina-amri.com) - a Community for Research Excellence!



This represents a virtual institute of over 200 UK and Chinese researchers to date, with:

- Researcher profiles
- Joint publication
- Joint international laboratories being formed – the first is the Bradford-Sichuan Joint International Laboratory in Polymer Micro Processing



Encouraging Outputs

25 collaborative research projects include:

drug development & delivery for diabetes, cancer, malaria, Traditional Chinese Medicines and

Advanced materials - Polymer biomaterials, bioresorbables, nanocomposites and micro-processing for medical devices and drug delivery

3 Research Workshops to date (Beijing (2011), Chengdu (2012), Bradford (2012)) have been held, co-hosted with partners, to develop research programmes

19 open innovation 'proof of concept' projects,

have been formed from **4 Open Innovation Workshops** to date, co-hosted with **Changzhou (2009, 2011) and Guangzhou (2011, 2012) Science & Technology Bureaus**, including drug delivery, biomarkers, stem cells, wound treatment, diagnostics.

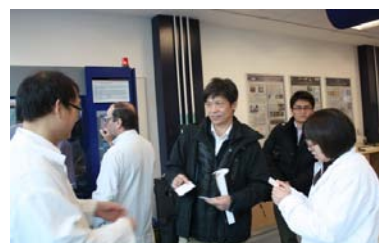
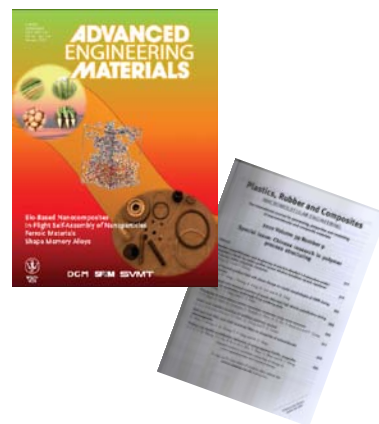
Programme outputs to date include:

- 13 joint publications
- >120 international conference presentations
- 3 joint international patents filed
- Participation in high level political & trade events
- Joint International Laboratory founded
- UK-China Advanced Materials Research Institute founded

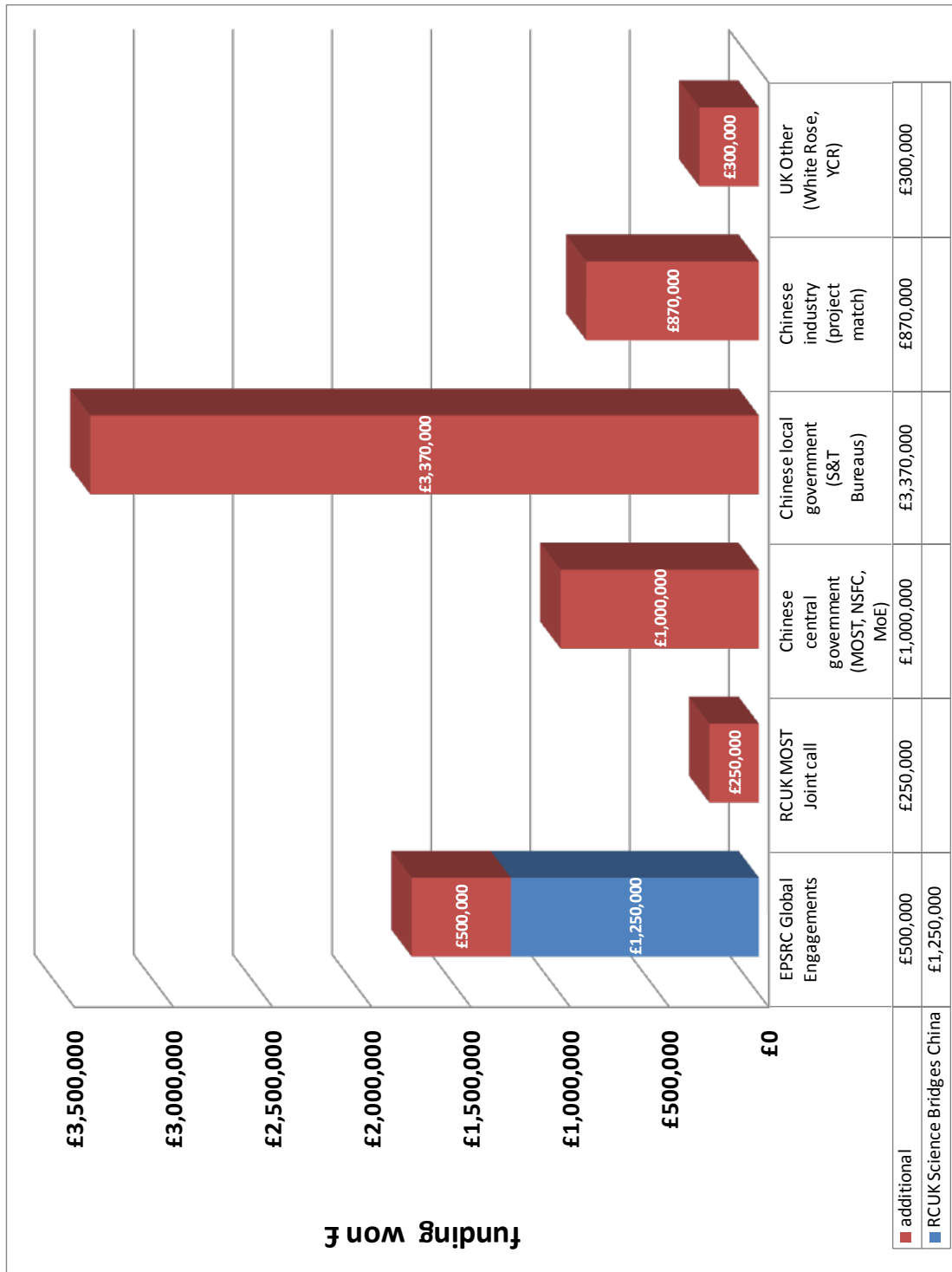
EPSRC Global Engagements supports and further builds:

Collaborative Research Programmes,

- Researcher Exchanges, - *a major emphasis*
- Joint research students,
- high level Research Workshops



Growing the platform:



2 grants, 1 project 8 projects 19 projects 6 projects support

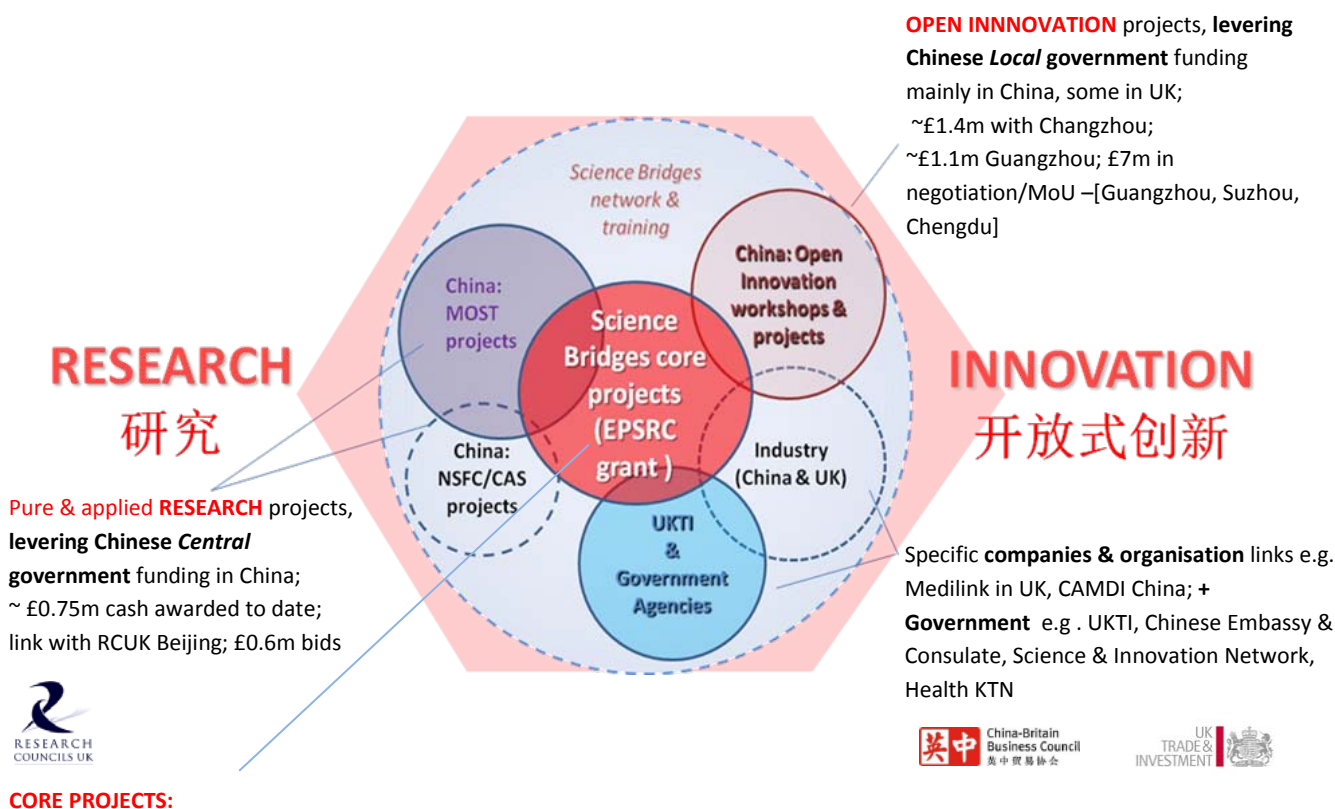
16 projects

RCUK Bradford Science Bridges China – Outline of Activities in the grant period + EPSRC Global Engagements Programme

RCUK Bradford Science Bridges China - Scope

The **Bradford RCUK Science Bridges China (SBC) programme** consists of collaborative research, development and open innovation in pharmaceuticals and healthcare. It brings together scientists and companies from the UK and China to develop new therapies, medical diagnostics, materials and devices.

The 3 year £1.25m RCUK-funded programme commenced on 30 June 2009. It builds upon a successful range of activities by members of the Bradford team in China over more than a decade, has an advisory board consisting of UK and Chinese members and links strongly with funding bodies and government agencies or Ministries in the UK and China. Our **EPSRC Global Engagements** programme (April 2012-March 2013) builds on this excellent foundation, building a Research Community.



CORE PROJECTS:

Pharmaceutical Sciences:

Drug development & delivery for diabetes, cancer, malaria;

Traditional Chinese Medicine data mining & therapies;

Key Collaborators: SIMM CAS, Tsinghua University, IMM CAS, Jilin University, TMMU Chongqing, Zhejiang TCM University, Nanjing University, XiangXue Pharma

Advanced Materials - Medical technology:

Polymer biomaterials/ bioresorbables/ nanocomposites for medical devices & drug delivery;

Key Collaborators: Sichuan University (SKLPME and NERCB); BUCT Beijing; ICCAS Beijing, Changchun IAC CAS

Science Bridges China – a Strategic Platform

Science Bridges China provides a strategic platform for the University, and for the UK by creating Opportunities with China by high level RKT people links

EPSRC Global Engagements further provides Research Programmes, Researcher Exchanges, Joint research students, & high level Research Workshops

Science Bridges Chinese Collaborators & People Bridges (人与人的桥梁)

Collaborators and People Bridges:

- Tsinghua University**
- Beijing University of Chemical Technology**
- Institute of Chemistry, Chinese Academy of Science**
- Institute of Materia Medica, Chinese Academy of Medical Science**
- Nankai University**
- Tianjin University**
- The 6th Military Institute, Chinese Military Science**
- Beijing Institute of Chemical Industry**
- MoST; NFSC; MoE**
- Jilin university**
- Changchun Institute of Applied Chemistry Chinese Academy of Sciences**
- Shenyang Pharmaceutical university**
- Prof Laurence Patterson, ICT, made Honorary Visiting Professor, TMMU Chongqing**
- Prof Phil Coates, Honorary Professor, Beijing University of Chemical Technology & Molecular Sciences Forum Professor at Institute of Chemistry, Chinese Academy of Science, Beijing**
- Paul Thorning, member of the Healthcare Joint Economic Trade Committee**
- Prof Peter York, Honorary Professor at Shanghai Institute Material Medica, Chinese Academy of Science**
- Dr Qun Shao leading an RCUK Summer School, Shanghai**
- Science Bridges China/ UKTI special event at the UK Pavilion, World Expo, Shanghai, 2010; Signing ceremonies at Expo for agreements with: Changzhou local government & Sichuan University**
- Shanghai Institute of Materia Medica, Chinese Academy of Science**
- China Pharmaceutical University**
- Fudan University**
- Jiaotong University**
- Shanghai TCM university**
- Zhejiang TCM university**
- China Medical City**
- Suzhou Biobay**
- Changzhou Science & Technology Bureau**
- Hong Kong University of Science & Technology (HKUST)**
- Hong Kong Chinese University**
- Guangzhou Science & Technology Bureau**
- Xiangxue Pharmaceutical Group**
- Dr Qun Shao, Paul Thorning & Prof Peter York lead the first Changzhou Open Innovation Workshop, 2009**
- Dr Qun Shao and Paul Thorning lead 1st Guangzhou Diagnostics Open Innovation Workshop, 2011**
- Opening the 2nd Advanced Materials for Healthcare Research Workshop, & launching the UK-China Advanced Materials Research Institute in Chengdu, 2012**
- Meeting the Mayor of Chengdu**
- EPSC-sponsored Bradford/ Polymer IRC - China academics meeting, Chengdu**
- Researcher exchanges**
- Prof Phil Coates, made Honorary Professor, and Leading International Professor and Famous Overseas Scholar, Sichuan University, Chengdu**
- Sichuan University**
- Huaxi Medical University**
- The Third Military University**
- Chengdu Science & Technology Bureau**
- Xinjiang**
- Inner Mongolia**
- Ningxia**
- Shaanxi**
- Gansu**
- Henan**
- Shandong**
- Hebei**
- Shanxi**
- Hubei**
- Anhui**
- Jiangsu**
- Zhejiang**
- Fujian**
- Guangdong**
- Guangxi**
- Yunnan**
- Guizhou**
- Hainan**
- Taiwan**
- Tibet (Xizang)**
- Qinghai**
- Inner Mongolia**
- Shaanxi**
- Gansu**
- Henan**
- Shandong**
- Hebei**
- Shanxi**
- Hubei**
- Anhui**
- Jiangsu**
- Zhejiang**
- Fujian**
- Guangdong**
- Guangxi**
- Yunnan**
- Guizhou**
- Hainan**
- Taiwan**
- Tibet (Xizang)**
- Qinghai**



Advanced Materials Research Institute
Founder members:
Polymer IRC, led by Bradford, with Durham, Leeds, Sheffield;
Sichuan University, BUCT, ICCAS, CIACCAS, SIMM CAS
~ 200 academic members

We gratefully acknowledge the support of:



+ University of Bradford RKT Centres in Advanced Materials Engineering, Polymer Micro & Nanotechnology, Pharmaceutical Engineering Science, Visual Computing, Skin Sciences

1. Translational Research Projects

1.1 RCUK-funded 'core' translational research projects

in healthcare: life sciences (drug discovery & delivery) based mainly in Bradford:

Science Bridges China Core Projects				
Project Title	UoB	Partner	Running Period	Amount from grant
Identification of Key Ingredients in Complex Chinese Medicines, to Develop New Therapies for Global Markets	Dr Qun Shao	Prof Guan Luo and Dr. Liangqiong Lin, Tsinghua University	Oct 2009 – June 2012	~£50k
A Mechanistic Investigation of TCM Therapies for Type 2 Diabetes October 2010 – June 2012	Dr Qun Shao	Prof Jiwen Zhang, Shanghai Institute of Material Medica, CAS Prof Luwei Xiao, Zhejiang Chinese Medicine University Prof Jingkai Gu, Jilin University	Oct 2010 – June 2012	~£50k
Seeding of plug flow crystalliser using a micro channel reactor	Dr Nicholas Blagden, Dr Qun Shao	Prof David Wei, Tianjin University	Aug 2011 – July 2012	~£20k
The Development of Agents Targeting the Hypoxic Tumour Cell Phenotype	Prof Laurence Patterson, Dr Klaus Pors	Prof Weishou Fang, Institute of Material Medica, Chinese Academy of Medical Sciences & Beijing Union Medical College	Nov 2010 – Oct 2012	~£60k
The development of FormylPeptide Receptor antagonists as a New Class of Antiproliferative Agents	Prof Laurence Patterson, Dr Kamyar Afarinkia, Dr Viqui Vinader, Dr Rob Falconer	Prof Xiuwu Bian, Southwest Hospital, Third Military Medical University	Nov 2010 – Oct 2012	~£80k
Improved Anti-Malarial Treatment through Enhanced Bioavailability of Artemisinin December 2010 – June 2012	Prof Laurence Patterson, Dr Wendy Hulse	Jiwen Zhang, Shanghai Institute of Material Medica, CAS Prof Jingkai Gu, Jilin University Prof Peter York, Crystec Ltd	Dec 2010 – June 2012	~£75k

1.2 RCUK-funded mini-core projects

based mainly in China, mainly advanced materials engineering (medical devices & technology), with some life sciences projects, run in collaboration with Bradford:

Science Bridges China Core Projects				
Project Title	UoB	Partner	Running Period	Amount from grant
Ultrasound-assisted Physical or Chemical Interaction from Melts	Prof Anant Paradkar, Dr Adrian Kelly, Dr Elaine Brown and Prof Phil Coates	Dr Hong Wu, Prof Shaoyun Guo, Sichuan University	Oct 2010 – June 2012	80k RMB (~£8k)
Electrically Conductive Polyurethane/Carbon Nanotubes Composites for Medical Microdevices	Prof Phil Coates, Prof Hadj Benkreira, Dr Raj Patel, Dr Ben Whiteside, Dr Fin Caton-Rose	Prof Hesheng Xia, Dr Guoxia Fei, Sichuan University	Oct 2010 – June 2012	80k RMB (~£8k)
Poly(vinyl alcohol)-based Composite Products for Drug Delivery	Prof Phil Coates, Dr Leigh Mulvaney-Johnson, Dr Ben Whiteside	Prof Qi Wang, Dr Ning Chen, Dr Li Li and Prof Jie Zhang, Sichuan University	Oct 2010 – June 2012	80k RMB (~£8k)
Solid Phase Processing of Polymer Blends and Nanocomposites	Prof Phil Coates, Dr Fin Caton-Rose, Dr Michael Martyn	Dr Xiaowen Zhao, Prof Lin Ye, Sichuan University	Oct 2010 – June 2012	80k RMB (~£8k)
Targeted polymeric micelles for anti-cancer drug delivery	Dr Kamyar Afarinkia, Prof L Patterson, Prof Phil Coates	Prof Zhongwei Gu, Dr. Yu Nie, Sichuan University	June 2011 – June 2012	50k RMB (~£5k)
Investigation of polymer micro-needles by micro-injection molding	Dr Ben Whiteside, Prof Anant Paradkar, Dr Adrian Kelly, Prof Phil Coates	Prof Dongyun Ren, Prof Yajun Zhang, Mr Xiang Lin, Mr Ling Xue, Beijing University of Chemical Technology	Aug 2011 – Aug 2012	50k RMB (~£5k)
Precise Microfabrication and Micro-Nanoscale Combination of Polymeric Microspheres for Promoting Cell Growth	Prof Phil Coates, Dr Colin Grant, Dr Ben Whiteside	Prof Zhihua Gan, Dr Xudong Shi, Institute of Chemistry, CAS	Aug 2011 – Aug 2012	50k RMB (~£5k)
Structure and Properties of Micro-moulded Poly(ε-caprolactone) and its miscible blends	Dr Tim Gough, Dr Ben Whiteside, Prof Phil Coates	Prof Yongfeng Men, Dr Ying Gao, Dr Yuqing Lai, Dr Zhiyong Jiang, Dr Lingzhi Liu, Changchun Institute of Applied Chemistry, CAS	Aug 2011 – Aug 2012	50k RMB (~£5k)
Toughening of Polylactide with Bioelastomer for Biomedical Application Research Team	Dr Mike Martyn, Dr Tim Gough, Prof Phil Coates	Prof Liqun Zhang, Hailan Kang, Prof Dongmei Yue, Beijing University of Chemical Technology	Aug 2011 – Aug 2012	50k RMB (~£5k)
Epigenetic Mechanisms of Tissue Development and Regeneration	Prof Vladimir Botchkarev	Dr. Guo-Liang Xu, The State Key Laboratory of Molecular Biology, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences	Nov 2011 - Jun 2012	50k RMB (~£5k)

1.3 Chinese government-funded internationally collaborative projects

- successful joint bids to MOST & NSFC international programmes, run in China;
- successful bids to MOE, run in the UK and China:

Science Bridges China: Chinese Research Councils Funded Projects/Awards					
Project Title	UoB	Partner	Running Period	Funding Body	Amount
Enhance the Bioavailability of Artemisinin by Combined Drug Delivery Techniques to Limit the Emergence of Malaria Resistance	Prof Laurence Patterson	Jiwen Zhang, Shanghai Institute of Materia Medica, CAS	May 2010 – Dec 2012	MOST	1m RMB
Development of methods for the assessment of TCM's disease/syndrome and efficacy as well as data mining	Dr Qun Shao	Prof Guoan Luo, Tsinghua University	May 2010 – Dec 2012	MOST	1m RMB
Preparation and Micromolding of Polymer Nanocomposites for Medical Applications	Prof Phil Coates	Qi Wang, Sichuan University	May 2011 – Dec 2013	MOST	1m RMB
				Sichuan Province	1m RMB
Fundamental studies on the preparation and micro-processing of polymer functional micro-devices	Prof Phil Coates, Prof Hadj Benkreira, Dr Ben Whiteside, Dr Michael Martyn, Dr Adrian Kelly, Dr Tim Gough	Prof Qi Wang, Prof Hesheng Xia, Prof Jie Zhang, Dr Yan Liu, Dr Ning Chen, Dr Shibing Bai, Dr Guoxia Fei, Ms. Zhengkun Hua, Sichuan University	Jan 2011 – Dec 2013	NSFC	1.6m RMB
Overseas Famous Scholar	Prof Phil Coates	Sichuan University	2010 -2015	MOE	1m RMB
High-End Foreign Professor	Prof Phil Coates	Sichuan University	1 July 2010 – 30 June 2013	Sichuan University	100k RMB
China Scholarship Council awards	Prof Phil Coates	Prof Yinghong Chen, Sichuan University	Jan 2011- Jan2012	MOE	~150k RMB
China Scholarship Council awards	Prof Phil Coates	Prof Qi Yang, Sichuan University	March 2011-March2012	MOE	~150k RMB

- **Research Workshops in Advanced Materials for Healthcare** have been run by the Bradford team in Beijing (Nov 2011) and Chengdu (April 2012) aimed at joint bids to MOST or NSFC international programmes – as a result in April 2012, 3 bids were submitted the 2012 RCUK-MOST Joint Call for Healthy Ageing Populations:

- **Biomaterials for Joint Soft Tissue Repair - Improving Health in Older Age:** University of Bradford/ State Key Laboratory of Polymer Materials Engineering, Sichuan University / Institute of Chemistry, Chinese Academy of Sciences Beijing/ Sheffield University/ Durham University
- **Elderly specific transdermal patch design to improve patient compliance in dementia patients:** University of Bradford/ Shanghai Institute of Materia Medica, Chinese Academy of Sciences/ Jilin University/ Peking University First Hospital/ The First People's Hospital of Changzhou.
- **An exploration of chemopreventive TCM and tumour targeted novel ultrapotent chemotherapeutic agents in tissues from UK and China cancer patients:** University of Bradford/ Southwest University Chongqing / Southwest Hospital, Third Military Medical University, Chongqing/ Huaxi Hospital, Sichuan University, Chendgu), St James' Hospital, Leeds University/ Bradford Royal Infirmary.

It was announced in late December 2012 that our biomaterials project (bold above) had been funded – the only grant in the healthcare Joint Call.

A further project is under development (Microneedles – Bradford, Beijing University of Chemical Technology and General Hospital of Beijing Military Region).

2. Chinese local government-funded 'open innovation' (OI) workshops run by the Bradford team in China, leading to projects for *proof of concept applications*, are based mainly in China. Projects are typically 2 year duration, with expectation of particular commercial milestones being met.

2.1 Changzhou Science & Technology Bureau hosted two OI workshops, with ~£1.2m funding in China.

Science Bridges China Open Innovation Projects							
	Project Title	UoB	UK partners	Chinese Partner 1	Other Chinese Partners	Amount	Funding to UK
Changzhou 1 Dec 2009	Repair of Oral and Periodontal Defects using Regenerative and Antimicrobial Strategies Delivered by Novel Tissue Scaffold	Dr Richard Telford, Dr Qun Shao	University of Leeds Neotherix Ltd	Prof Jiwen Zhang, Shanghai Institute of Materia Medica, CAS	Dr Juan Du, Changzhou Sanwei Industry Institute Prof Jingkai Gu, Jilin University	~£200k	£61.4k [r00132]
	The Development of Nanoparticulate Curcumin with Enhancers from TCM for Treatment of Cancer and Alzheimer's Disease	Prof Anant Paradkar		Prof Yihu Qiao, Nanjing University	Dr Zhifeng, Changzhou City Hospital	~£200k	£57k [r00117]
	A Suite of Platform Technologies for Masking the Undesirable Taste of TCM and Western Medicines in Liquid Form	Prof Laurence Patterson, Dr Qun Shao	Dr Stefan Ogrodzinski, Biostatutes	Prof Yi Feng, Shanghai University of Traditional Chinese Medicine	Changzhou Yabang Pharmaceuticals Co Ltd	~£200k	£60k [r00172]
Changzhou 2 April 2011	Translational research on dental pulp stem cells in orthopaedic implants	-	Prof Xubin Yang, Leeds University	Changzhou Kanghui Medical Innovation Co. Ltd		~£50k*	~£50k
	Development of new hydrocolloid for improved wound treatment	Prof Anant Paradkar	Prof Kadem Al-Lamee, Arterius Ltd; Mr Richard Snell, Altrika Ltd	Ms Ping Li, Changzhou Nanfang Medical Application Factory Co. Ltd	Prof Huayu Tian, Changchun Institute of Applied Chemistry, CAS	~£50k*	~£50k
	Stem cell application	Dr Gill Westgate	Mr Richard Snell, Altrika Ltd	Prof Delin Zhu, Jiangsu Heze Biotech Ltd	Prof Peibiao Zhang, Changchun Institute of Applied Chemistry, CAS	~£50k*	~£50k

- Each project in phase 2 has ~£150k match funding from each Changzhou company involved, finance entirely in China.

2.2 Guangzhou I – November 2011 (awards announced April 2012) – Guangzhou Science & Technology Bureau (Biolsland) have hosted one workshop in the grant period, led by our team. This has provided £1.1m across 7 projects, with match funding required from Chinese industrial collaborators)

Project Title	UoB	UK partners	Chinese Partner	Amount
Development of Candidate Vaccines Against Viral Disease using Advanced Adjuvant Technology		Jon Sayers, University of Sheffield	South China United Vaccine Institute	1.8m RMB
Development of cancer biomarker immunoassay using novel antibody mimetics		Darren Tomlinson, Leeds University	Raybiotech, Inc. Guangzhou	2m RMB
Multi-Analyte-Virus-Chip (MAVIC)		Tom Gibson, ELISHA Systems Ltd	Guangzhou IRD Medicine Co., Ltd	2m RMB
Biosensor Systems for Cancer Biomarkers and Bacteria		Tom Gibson, ELISHA Systems Ltd	Guangzhou Wondfo Biotech Co., Ltd	1.5m RMB
Development of Novel Reagents for Virus Detection and Antiviral Therapeutics		Darren Tomlinson, Leeds University	Guangzhou Institutes of Biomedicine and Health	1.3m RMB
Automatic System for Measurement of Neural Respiratory Drive and Muscle Function		Mohammed Benaissa, Sheffield University	Guangzhou Respiratory Medical Science Ltd. Co	1.2m RMB
Clinical Trial and Evaluation of a Computer Aided Diagnostic System for Breast Cancer Screening	Hassan Ugail		Guangzhou Huayin Medical Laboratory Centre, China	1.2m RMB

Note that the Open Innovation projects may be set up without Bradford University being a collaboration partner, to help develop the range of collaborators. White Rose University members are supported by the White Rose University Consortium for Open Innovation workshop costs.

2.3 Guangzhou II – this Workshop is Yorkshire Cancer Research funded –ran in July 2012:

	Project title	UK/China collaborators	Awarded amount from GDD	Guangzhou company match funding
1	Swept laser source for ultra-high resolution optical coherence technology	Guangzhou FemtoView Optoelectronics Technology Co. Ltd./ Sheffield University	£200K	£200K
2	Development of an MMP-based diagnostic system for cancer	Guangzhou Zhongke Kaisheng Medical Technology Co. Ltd; Sun Yat-sen University/University of Bradford	£200K	£200K
3	Development of automated detection system of multi-gastric cancer markers protein chip	Guangzhou Raybiotech Inc., Guangzhou South China biochip research institute /Leeds University	£150K	£150K
4	Development of an Immune colloidal gold kit for testing for malaria based on a non antibody binding protein	Guangzhou Hexin Biotechnology Co. Ltd./ Leeds University	£120K	£120K
5	Developing tumour marker detection kits using novel nABP materials	Daan Gene/Leeds University	£100K	£100K
6	Kit for mobilisation and isolation of haematopoietic stem cells (HSC) for use in therapy	Sun Yat-sen University/University of Hull	£100K	£100K

2.4 Guangzhou III - a third Guangzhou Workshop is being supported by Yorkshire Cancer Research.

3 RESEARCH & INNOVATION OUTPUTS

3.1 PUBLICATIONS - journal papers include

- Li Haiyan, Guo Zhen, Peter York, Qun Shao, Gu Jingkai, Zhang Jiwen. *Research of Traditional Chinese Medicine in Terms of Herbalomics [J]*. Mode Tradit Chin Med Mater Med, 2010, 12(2): 160–164.
- Haiyan Li, Xianzhen Yin, Junqiu Ji, Lixin Sun, Qun Shao, Peter York, Tiqiao Xiao, You He, Jiwen Zhang. *Microstructural Investigation to the Controlled Release Kinetics of Monolith Osmotic Pump tablets via Synchrotron Radiation X-ray Microtomography*. Int J Pharm, 2012, 427(2): 270-275.
- Hai-yan Li, Xiang-yong Cui, Feng Gao, Peter York, Qun Shao, Xian-zhen Yin, Tao Guo, Zhen Guo, Jing-kai Gu, Ji-wen Zhang. *Characterization and mapping of the multi-component release kinetics of a Traditional Chinese Medicine dosage form using a modified LC/MS/MS method and chemomic release kinetic theory*. Acta Pharmaceutica Sinica B 2011;1(2):106–114.
- T Wei, L Lei, H Kang, B Qiao, Z Wang, L Zhang, P D Coates, K-C Hua, J Kulig, *Tough Bio-based Elastomer Nanocomposites with High Performance for Engineering Application*, Advanced Engineering Materials, 14, 112-118, 2012
- Zhan YH; Patel R; Lavorgna M; Piscitelli F; Khan A; Xia HS; Benkreira H; Coates P D *Processing of polyurethane/carbon nanotubes composites using novel minimixer*, 39 (9) 400- 410, 1465-8011, Plastics, Rubber and Composites: Macromolecular Engineering, 2010
- Li L; Mulvaney-Johnson L; Chen N; Wang Q; Coates PD *Small scale injection moulding of modified poly(vinyl alcohol)*, 39 (9), 411- 418, 1465-8011, Plastics, Rubber and Composites: Macromolecular Engineering, 2010
- Feng Zhi, Xi Che, Xuefeng Jia, Xiang Zhang, Zhengjie Meng, Rohan Ambardekar, Anant R. Paradkar Yiqiao Hu, Yilin Yang, *Enhanced brain targeting of curcumin by intranasal administration of a thermosensitive poloxamer hydrogel*, Journal of Pharmacy and Pharmacology (in press)
- Laura Cosentino, Mariano Redondo-Horcajo, Ying Zhao, Ana Rita Santos, Kaniz F. Chowdury, Victoria Vinader, Qasem M. A. Abdallah, Hamdy Abdel-Rahman, Jérémie Fournier Dit Chabert, Steven D. Shnyder, Paul M. Loadman, Wei-shuo Fang, José Fernando Díaz, Isabel Barasoain, Philip A. Burns, Klaus Pors. *Synthesis and Biological Evaluation of Colchicine B-Ring Analogues Tethered with Halogenated Benzyl Moieties*. Journal of Medicinal Chemistry (in press)
- CHEN Li-Bing, WANG Zhong-Hua, FU Dan-Dan, LING Die, GE Wei-Hong, GU Jing-Kai, Peter YORK, SHAO Qun, ZHANG Ji-Wen. *Application of Chemomic Release Kinetics to Evaluation of the Release Characteristics of Yinqiaojiedu Tablets*. Chin. J. Nat. Med. 2008, 6(6), 450-455.
- Dhumal, RS, Kelly, AL, York, P, Coates, PD, Paradkar, A *Cocrystallization and Simultaneous Agglomeration using Hot Melt Extrusion*, Pharmaceutical Research 27 2725-2733 (2010)
- Paradkar A; Kelly A; Coates P; York P, *Shear and extensional rheology of hydroxypropyl cellulose melt using capillary rheometry*, 49, 304-310, 0731-7085, Journal of Pharmaceutical and Biomedical Analysis, , 2009
- A.N. Mardaryev, V. Rapisarda, L. Bo, G. Xu and V.A. Botchkarev. *transcription factor inhibits the expression of non-epidermal lineage genes in keratinocytes via regulation of the Polycomb component Cbx4*, Journal of Investigative Dermatology, 2012, 132, (2), 63
- Bo Liu, Yuan-Feng Liu, Ya-Rui Du, Andrei N. Mardaryev, Wei Yang, Hui Chen, Zhi-Mei Xu, Chen-Qi Xu, Xiao-Ren Zhang, Vladimir A. Botchkarev, Yu Zhang, and Guo-Liang Xu. *Cbx4 regulates proliferation of thymic epithelial cell and thymus function*, Development, 2013 (in press).

3.2 INTERNATIONAL CONFERENCE PROCEEDINGS

We have over 120 international conference presentations associated with the Science Bridges China programme in the grant period, including plenaries, keynotes, invited papers; the international meetings include the following:

103rd AACR Annual Meeting 2012, Chicago
 AAPS, Los Angeles, 2009
 AAPS, Washington, 2011
 Academy of Pharmaceutical Science Annual Conference (Pharmsci UK), Nottingham, 2011
 Canadian Society of Rheology, Montreal, 2011
 Drug Delivery and Formulation Asia Summit, 2011
 20th ICCE, Beijing 2012
 2nd International Conference on Nanomechanics and Nanocomposites, Beijing, 2010
 8th International Congress of Pharmaceutical Sciences, Brasil, 2011
 6th International Conference on Micro Manufacturing (ICOMM), Tokyo, 2011
 IUPAC Macro World Polymer Congress, Virginia Tech, 2012
 NexGen China Conference, Shanghai, 2012
 Polymer Process Engineering'09, Bradford, 2009
 Polymer Process Engineering'11, Bradford, 2011
 Polymer Processing Society International, Banff, 2010
 Polymer Processing Society International, Marrakesh, 2011
 Polymer Processing Society International, Niagara, 2012
 Polymer Processing Society International, Pattaya, 2012
 Science Bridges China Research Workshop, Beijing, 2011
 Science Bridges China Research Workshop, Chengdu, 2012
 Society of Plastics Engineers, ANTEC, Chicago, 2009

3.3 OTHER OUTPUTS

We have participated in a wide variety of international meetings, in addition to those indicated above, including:

Academy of Pharmaceutical Science Annual Conference, Nottingham, UK 2010
 Academy of Pharmaceutical Science Annual Conference, Nottingham, UK, 2009
 Academy of Pharmaceutical Sciences China-India Event (Joint event with Nottingham), 2009
 Annual Conference of Consortium of Globalisation of Chinese Medicine, Hongkong, 2010
 Annual Meeting of the European Society for Dermatological Research, Venice 2012
 Beijing Health Innovation Forum (Chinese Medicine), 2009
 Beijing Health Innovation Forum (East-West convergence), 2010
 Beijing Health Innovation Forum (International co-operation) 2011
 Beijing Health Innovation Forum (Technology Transfer Case Studies) 2012
 Beijing HIP annual conference, Beijing , 2010
 Chinese Association of Medical Device Industries (CAMDI) International conference, 2009
 CCCMHPIE Healthcare Industries Forum 2011
 CMEF Woundcare Forum, Shenzhen, 2010
 Globalisation for Chinese Medicine Annual Conference, Hongkong, China, 2011
 ICONTOX, Lucknow India, 2010

International Translational Medicine Symposia, Chongqing, 2010

JETC Healthcare Working Group, 2009

JETC Healthcare Working Group, 2010

Medilink Y&H Ltd Emerging Markets Forum, 2011

Ministerial Briefing Event, Beijing 2011

MOST open innovation briefing event 2011

Nanotechnology convention, Beijing, 2009

Shanghai BioForum, 2011

UK Life Sciences day, Shanghai Expo, Shanghai 2010

UKTI China Sector briefing event

UKTI innovation with China event 2011

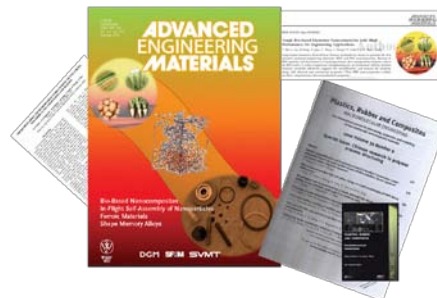
UKTI R2D BioBridge International Conferences in Beijing, Suzhou, Shanghai) 2011

UKTI R2D BioBridge International Conferences in Shanghai, 2011

UKTI R2D healthcare innovation forum, 2010

UKTI/Medilink Woundcare mission (Beijing, Shanghai, Guangzhou), 2010

7th World Meeting on Pharmaceuticals, Biopharmaceutics and Pharmaceutical Technology, Malta, 2009



3.4 SHARED INTELLECTUAL PROPERTY

There are shared IP agreements for all of the above projects (open innovation and research); plus separate IP with:

- Sichuan University - High conducting polymer carbon nanotube composites
- Neotherix/ University of Leeds - Tissue Engineering –Photodynamic Therapy
- A Paradkar – hot melt extrusion – patent filed
- P York/SIMM - artemesinin anti-malarial treatment using supercritical fluids - patent being developed.

3.5 NETWORKS

Highly active networks of leading Chinese academics and organisations, industry and government funding agencies (central, regional and local) have been developed – these are high impact, functional and key agents for delivery of research and innovation activities and projects – far more than a means of introducing partners.

- Royal Society, February 2010– formal launch of our Science Bridges China programme, with UK and Chinese collaborators, Advisory Board members, the Chinese Embassy and RCUK.
- Research Workshops (Beijing, Nov 2011 and Chengdu, April 2012 – joint with EPSRC Global Engagements programme) – both with extensive Researcher Profile and presentation outputs (ongoing access via web site) and Open Innovation Workshops (Changzhou, Dec 2009 and April 2011, Guangzhou November 2011) - typically ~ 60 attendees at each workshop - have built our capability platform (in both China and the UK), to help identify collaboration teams, formulate projects and bids and deliver projects;
- Shanghai Expo – Science Bridges China Life Sciences Event (23 Sept 2010) at the invitation of and with support from UKTI and the Science & Innovation Network;
- our latest development is the launch of the **UK-China Advanced Materials Research Institute** (April 2012) – founder UK members with Bradford and the other Polymer IRC universities (Durham, Sheffield, Leeds) are Sichuan University, ICCAS, CIAC CAS, SIMM CAS, BUCT;



UK-CHINA AMRI Founding Members are:



Leeds
Bradford
Durham
Sheffield



Beijing
University
of Chemical
Technology



Sichuan
University



Changchun
Institute of
Applied
Chemistry CAS



Institute of
Chemistry
CAS, Beijing



Shanghai
Institute Materia
Medica CAS

Chinese Academy of Science (CAS):

Please see www.ukchina-amri.com for more details

Science Bridges China Event co-hosts in China:

- Sichuan University** - Prof Qi Wang/Prof Guangxian Li (Vice President) – State Key Laboratory Polymer Materials Engineering and National Engineering Research Centre for Biomaterials visits & formation of the International Centre for Polymer Microprocessing; Second Research Workshop, Chengdu, April 2012 & Chengdu High Tech Zone meetings, April 2012.
- Shanghai Institute Materia Medica Chinese Academy of Sciences** – Prof Jiwen Zhang, Prof Huliang Jiang (Associate Director) – Open Innovation events with Changzhou; *Shanghai Expo Science Bridges China Life Sciences Event* - co hosted by **UKTI, Science & Innovation Network, British Consulate Shanghai** ;

- (iii) **Changzhou Science & Technology Bureau** team – first and second Open Innovation Workshops (Dec 2009, April 2011);
- (iv) **Guangzhou Science & Technology Bureau** team – third Open Innovation Workshop (Nov 2011); fourth Open Innovation Workshop is being supported by Yorkshire Cancer Research (July 2012)
- (v) **Beijing University of Chemical Technology** – first Research Workshop, Beijing November 2011.



In addition we have participated in **high level political and trade events**:

1. Joint Economic Trade Commission Healthcare Working Group process – two meetings held in 2010 and 2011, promoting trade and innovation between the UK and China
2. R2D (Research to Development) BioBridge Steering Group, guiding UKTI and Science and Innovation Network policy on UK-China collaboration
3. Support to Ministerial fact-finding missions David Willetts, Lord Greene to China
4. Participation in organising committees of Shanghai BioForum (June 2011), Beijing Health Innovation Forum (March 2011 and March 2012), CCCMHPIE Medical Innovation Forum (May 2012).
5. UKTI/BIS/Science Innovation Network - Life Sciences: Bradford Science Bridges China at the UK Pavilion, Shanghai Expo, 23 September 2010.

4 TRAINING/ RESEARCHER EXCHANGES –

People Bridges - a key element in building cooperation

Technical and capability-based training for Chinese research staff is undertaken in association with funded projects:

4.1 Chinese Researcher visits to Bradford included:

Beijing University of Chemical Technology -

2012 Xiang Lin (1 month);

2013 - Ms Xiujuan Jiang, Ms Jiajia Xue, Ms Limin Meng, Dr Ying Liu (1 month)

Institute of Chemistry, Chinese Academy of Science (ICCAS) Beijing:

2013 - Dr Xia Dong, Dr Guoming Liu (2 wk)

Sichuan University:

2010 - Prof H Xia Dr Li Li, Dr Qi Yang (3wk),

2011 - Dr Hong Wu, Dr Xiaowen Zhang, Dr Guoshua Fei, Dr Ning Chen (4 wk);

Prof Qi Yang (10 months – Chinese Scholarship Council),

Prof Yinghong Chen (12 months - Chinese Scholarship Council);

Changchun IAC CAS:

2012 – Dr Zhiyong Jiang (4 wk), Dr Ying Gao (4 wk);

SIMM: 2010 Xianzhen Yin (2 months); 2013 Prof Jiwen Zhang, Xianzhen Yin (1 wk)

Tsinghua: 2011 Jianfei Xia (3 months)

Researchers also visited Sheffield and Durham Universities.



A few of the many Researcher exchanges – key elements in our programme, to build People Bridges not only with the current Research leaders, but also between UK and Chinese young researchers

4.2 UK Researcher visits to China in the grant periods included:

Prof Coates (many lectures and meetings around China); 2010 -2013
 Prof A Paradkar (Sichuan and Shanghai, various meetings), 2011-2013
 Prof P York (Shanghai – many meetings, lectures); 2010 -2013
 Dr Q Shao (various meetings around China) 2010-2013
 Dr K Pors (Beijing, research visits), 2010-11
 Prof Vladimir Botchkarev, Prof Diana Anderson, Prof Hassan Ugail, Prof Kirill Horoshenkov 2011-13

November 2011: – Prof A Paradkar, Dr P Caton-Rose, Dr P Twigg, Dr K Pors, + Dr A Crawford (Sheffield Uni), Dr Junjie Wu (Durham Uni);

April 2012: - as Nov 2011 plus Prof L Patterson, Dr B Whiteside, Prof S Rimmer (Sheffield Uni);

4.3 Joint Research Students

SIMM CAS – 2 extramural PhD students registered at Bradford (supervisors Prof L Patterson, Dr Q Shao) with Prof J Zhang, SIMMCAS;
 Sichuan University – 2 PhD students co-supervised (Prof P Coates, with Prof H Xia, Prof Q Wang, Sichuan);

4.4 Joint International Laboratory

The Joint International Laboratory for Polymer Microprocessing was established by Bradford and Sichuan Universities in July 2010; Directors are Prof P Coates, Prof Q Wang, Dr B Whiteside, Prof H Xia.

5 MINISTRY/RESEARCH COUNCIL MEETINGS

We have undertaken regular strategy and update meetings in China with:

RCUK Beijing office (Chris Godwin, Grace Lang)
 Science & Innovation Network (Beijing, Shanghai and Guangzhou offices)
 Ministry of Science & Technology (MOST - Dr Zhou, Director for Europe and Dr Dai, Deputy Director
 Ministry of Education (MoE -Prof Yang, Director for Europe)
 National Natural Science Foundation of China (NNSFC, Prof Lu, Dr Ma)
 Science & Technology Bureaus of Changzhou, Guangzhou, Suzhou, Chengdu

In all these meetings, we have represented the Science Bridges China platform, including our fellow universities in the UK. We have been particularly grateful for leaders of Chinese collaborator organisations who have accompanied us to particular meetings with Chinese officials.

6 Bradford RCUK Science Bridges China People:

6.1 The Bradford Team:



Left to right:

Prof Phil Coates FEng – Director & Academic Lead, Advanced Materials Engineering

Dr Qun Shao – Programme Manager;

Paul Thorning - Leader, Open Innovation China;

Prof Peter York, Pharmaceutical Innovation

Prof Laurence Patterson; Academic lead, Life Sciences

Xiao Lei Wang – External Relations Officer

Prof Anant Paradkar, Pharmaceutical Engineering Sciences, and Prof Richard Greene, Dean of Life Sciences and Prof Alastair Wood, Dean of Engineering, Design & Technology join this core team to form our **Management Group**.

Academic co-applicants: Prof Jamshed Anwar, Prof Clive Beggs, Prof Hadj Benkreira, Dr Rob Falconer, Prof Tiho Obrenovitch, Dr Klaus Pors.

Other key researchers: Dr Kamyar Afarinkia, Dr Marina Bloj, Dr Fin Caton-Rose, Dr Mike Martyn, Dr Tim Gough, Dr Adrian Kelly;

Administration support: Sarah Womersley

Science Bridges China runs in association with the **Polymer IRC**, and the School of Engineering, Design & Technology and School of Life Sciences, University of Bradford, and with the following **Research & Knowledge Transfer Centres** in Bradford:

- Advanced Materials Engineering, Infection Control & Biophysics,
- Centre for Skin Sciences,
- Pharmaceutical Engineering Science,
- Polymer Micro & Nano Technology,
- Visual Computing

6.2 Other UK partners

We have expanded to involve other UK academic in SBC research and OI programmes, including Nottingham University and the White Rose Universities (Leeds, Sheffield, York), and the Polymer IRC (Bradford, Leeds, Durham and Sheffield), the Universities of Hull, Bangor, and East Anglia. The first Guangzhou Open Innovation Workshop included participation from STFC. The second Guangzhou Open Innovation Workshop has been sponsored by Yorkshire Cancer Research. Various industrial partners from the UK and China are involved in the OI programmes, and also in the Research Workshops.

6.3 Bradford RCUK Science Bridges China - Advisory Board:

UK members:

- Patrick Cantrell, *Partner, Walker Morris;*
- Dr Futao Chen, *Minister Science Counsellor, Chinese Embassy, London;*
- Chris Cotton, *China Britain Business Council (CBBC);*
- Dr Jiangshen Du, *UKTI Life Science Specialist;*
- Dr David Farrar, *Smith & Nephew Ltd;*
- Alastair Gardiner, *UKTI;*
- Kevin Kiely, *MD Medilink Y&H Ltd;*
- Peter O'Donovan, *Consultant, Bradford NHS Hospitals.*

Chinese members:

- Professor Jiwen Zhang, Shanghai Institute Materia Medica Chinese Academy of Sciences
- Professor Qi Wang, State Key Laboratory of Polymer Materials Engineering, Sichuan University
- Professor Liqun Zhang, Head, Key Laboratory of Beijing City on Preparation & Processing of Novel Polymer Materials, Beijing University of Chemical Technology
- Professor Jinliang Qiao, Director of BRICI Sinopec, Beijing
- Professor Guangxian Li, Vice President Sichuan University, co-chair China Materials Society
- Professor Quan-Ming Zou, Director of the Biopharmaceutical Research Institute, Third Military Medical University, Chongqing
- Professor Xiuwu Bian, Director, Institute of Pathology and Southwest Cancer Center, Third Military Medical University, Chongqing
- Professor Weishuo Fang, Institute of Materia Medica Chinese Academy of Medical Sciences, Beijing
- Professor Yi Feng, Shanghai University of Traditional Chinese Medicine, Shanghai
- Professor Hongjuan Cui, State Key Laboratory of Silkworm Genome Biology, Southwest University
- Professor Jingkai Gu, Jilin University
- Professor Guoan Luo, Tsinghua University, Beijing

We are most grateful for the active support of Advisory Board Members.

6.4 Appointments

- Phil Coates – Famous Overseas Scholar, Sichuan; Member National Bureau of Foreign Experts of China; Honorary Professor of Sichuan University and Beijing University of Chemical Technology; Molecular Science Forum Professor at ICCAS Beijing and CIACCAS Changchun.
- Qun Shao – Visiting Professor of Jilin University.
- Paul Thorning – Steering Group member R2D BioBridge, member of JETC Healthcare Working Group, member of Project Dynasty Strategy Group.
- Peter York – Visiting Overseas Professor, Chinese Academy of Science, Honorary Professor, SIMMCAS

6.5 EPSRC GLOBAL ENGAGEMENTS team includes, at Bradford:

Prof Phil Coates, Professor Anant Paradkar, Dr Adrian Kelly, Dr Ben Whiteside, Dr Phil Caton-Rose, Professor Hadj Benkreira, Professor Clive Beggs, Professor Laurence Patterson, Professor John Sweeney, Dr Tim Gough, Dr Peter Twigg, Professor Kirill Horoshenkov, Dr Klaus Pors, Dr Helen Sheldrake, Dr Michael Martyn, Dr John Buckley, Dr Leigh Mulvaney-Johnson, Dr Marina Bloj, Dr Elaine Brown, Dr Kamyar Afarinkia, Dr Robert A Falconer; Xiaolei Wang (Programme Manager).

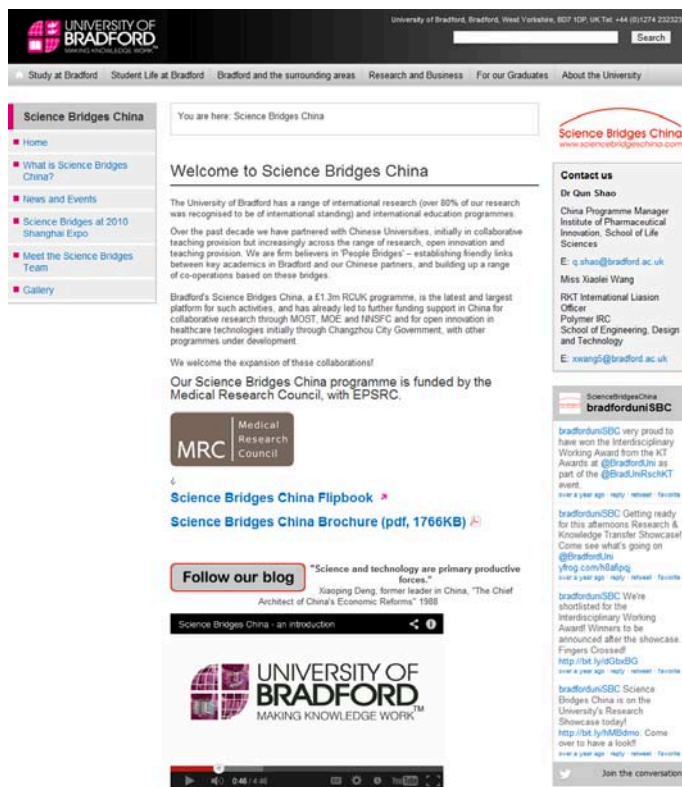
7. Web sites

The Bradford RCUK Science Bridges China

platform is at www.sciencebridgeschina.com

The UK-China Advanced Materials Research Institute

is at www.ukchina-amri.com



Welcome Core Members About Us China map Researcher Profiles



UK-China Advanced Materials Research Institute

The UK-China Advanced Materials Research Institute is a virtual Research Institute for the leading researchers in UK-China collaborations in polymer-related materials, based on the RCUK-Bradford Science Bridges China and EPSRC-Bradford Global Engagements platform.

This site provides an introduction to our activities and resources for our members.



launch of the UK-China AMRI, April 2012 in Chengdu:
Directors Prof Li Guangxian, Vice President of Sichuan University and
Prof Phil Coates FREng, Director of the Polymer IRC
join hands to begin this new collaboration

Supported by:



Science Bridges China – a ‘value proposition’

Target audience:	Value proposition	Benefits	Value SBC seeks from stakeholder
University of Bradford	<ol style="list-style-type: none"> SBC offers a strategic platform to the University for interactions with China, by targeting top level Chinese Universities and organisations, to develop people bridges. SBC promotes growth in: <ul style="list-style-type: none"> UoB UG and PG student recruitment in China, staff exchanges, international grants and contracts, joint publications, and open innovation and associated commercial opportunities. SBC further provides the University: <ul style="list-style-type: none"> increased visibility with UK and Chinese government, academics and industry in the healthcare and advanced materials areas; development of UK academic co-operations targeted marketing of UoB capabilities further possible international opportunities e.g. India, Brasil SBC academic base is Healthcare = Life Sciences + Advanced Materials Engineering + the increasing interface between these. The model could be extended to other academic areas. (SBC won the UoB Interdisciplinary KT Award in 2011) SBC has a strong translational research emphasis – academic research & knowledge transfer leading to innovation and commercial developments. 	<ul style="list-style-type: none"> RCUK grant: <ul style="list-style-type: none"> Funded ‘core’ research projects Funded mini-core projects in China Overhead from the RCUK grant Equipment funded in UoB Travel costs Networking costs Visibility enhances the international reputation of the University, Bridge links can help open up new opportunities, including UG and PG student recruitment from a range of high level institutions A working model is always useful, if resource is available Good for UoB KT reputation and delivery 	<ul style="list-style-type: none"> Continued support of academic and other staff to run SBC (the ‘core’ team). Input of further academic staff (broadening the expertise base) to SBC activities, projects, etc. Some admin support (via host Schools) Web support Central marketing help. Financial input for specific activities (e.g. HEIF, RKT investment)
UK Universities	<ul style="list-style-type: none"> The SBC brand is valuable, with a good track record in China – UK academic partners can join with us and gain value from our schemes Links with high level Chinese universities in health and advanced materials-related areas Opportunities with Chinese government funding agencies – potential for involvement in collaborative projects – the SBC brand can help Opportunities with Chinese local government funding agencies – potential for involvement in Open Innovation collaborative projects, schemes operated via SBC. Opportunities for staff exchanges with Chinese partners Development of inter-university co-operations in the UK, to mount other bids, develop academic areas, etc 	<ul style="list-style-type: none"> Access to open innovation and research workshops, and funded projects 	<ul style="list-style-type: none"> Academic staff with high level skills to participate in our workshops and subsequent projects Preferably financial input to be part of our platform Part of our case that we are benefiting the UK

UK industry	<ul style="list-style-type: none"> • Access to the SBC platform and brand • Actual or Potential collaborators in an SBC projects in China, which may open up product development, shared IP, and may help open up new market opportunities • Access via the Bradford team to knowledge and skills in Chinese partners • Ability to engage in a programme which has formal Chinese government support, potentially leading to fewer trade barriers, faster approvals, support to creation of new subsidiaries and offices in China 	<ul style="list-style-type: none"> • Access to open innovation and research workshops, and funded projects 	<ul style="list-style-type: none"> • Industrial and commercial skills to participate in our workshops and subsequent projects • Preferably financial input to be part of our platform • A lobby for potential TSB etc • Part of our case that we are benefiting the UK
UK Government	<p>In addition to many of the above points being of direct interest and value to UK Government (including Research Councils and BIS), particular values include:-</p> <ul style="list-style-type: none"> • Healthcare is a strategic area (one of 3) for UK-China cooperation • High quality research and development in China costs around 6 times less than in the UK; hence our leverage of £3.25m cash for projects in China in the grant period (more to come) allows the equivalent of ~£20m work in the UK, a leverage factor of at least 16 on the original RCUK grant! • RCUK international co-operation – we have a mutually beneficial interaction • SIN co-operation - our links with industry and leading academics is valuable for SIN • UKTI co-operation (+ Expo high profile joint event) – this has been first class, with much involvement, again to mutual benefit • Network – we have good links to various levels in Chinese organisations, especially high levels, and have formed a genuine community in our research area, so have much developed research capacity and capability; we have formed a unique database of research capability, which provides opportunity for targeted development of bids and programmes. • Overall, our SBC has provided a platform for development of increased, targeted in high priority areas, co-operation between the UK and China. 	<ul style="list-style-type: none"> • We provide a potential delivery arm, with an excellent track record of operation to date 	<ul style="list-style-type: none"> • Advice and people support • Financial support needs to be obtained for the future

Our **EPSRC Global Engagements Programme** has allowed us to build strongly on the SBC foundations - we retain the Science Bridges China 'brand' as this is so well known and respected in China.

Acknowledgements:

We are grateful for the support of Research Councils UK, including the Medical Research Council and EPSRC, and the University of Bradford and for Chinese support to date from MOST, NSFC, MoE, Sichuan University and Chinese local governments in Changzhou and Guangzhou.. We are also grateful for the collaborative support of the UKTI, British Embassy and Consulate staff in China, the Science & Innovation Network in China, the Health Technologies & Medicines KTN, and Medilink Y&H Ltd,



RKT Centres in Advanced Materials Engineering, Polymer Micro & Nanotechnology, Pharmaceutical Engineering Science, Visual Computing, Skin Sciences



