



Cyclops Healthcare Network

Grand Challenge Workshop

20-21 March 2017
Nottingham Conference Centre

Programme

Welcome

Dear Delegate

We are delighted to welcome you to the launch of the EPSRC-funded Cyclops Healthcare Network, and our Grand Challenge Workshop.

Over the next two days, we will explore how closed loop control approaches can provide optimised treatment that is personal to the individual patient. The potential for a significant improvement in patient outcomes is exciting and we look forward to funding some innovative feasibility studies and seeing these develop into larger grants.

We are initially focussing on the opportunities and challenges posed by three clinical areas:

- the delivery of treatment to cancer patients
- the moment-to-moment management of critically ill (or injured) patients
- the accelerated healing of chronic wounds

At this workshop, we are delighted to be creating a multidisciplinary community of academics, clinicians and industrialists, supported by stakeholders, to address these challenges. Together, we are taking the first steps towards a revolutionary leap in autonomous personalised medicine.

Medical treatment is not the only safety-critical sector to explore the benefits of autonomous systems. Increasingly, we are seeing developments in other fields and we are very fortunate to hear first hand the experiences faced in the development of autonomous aircraft, by Maureen McCue, Head of Research and Technology, Aerospace, BAE Systems.

This workshop is the beginning of our journey and we are pleased you could join us today.



Dr Sergiy Korposh
Cyclops Academic Director



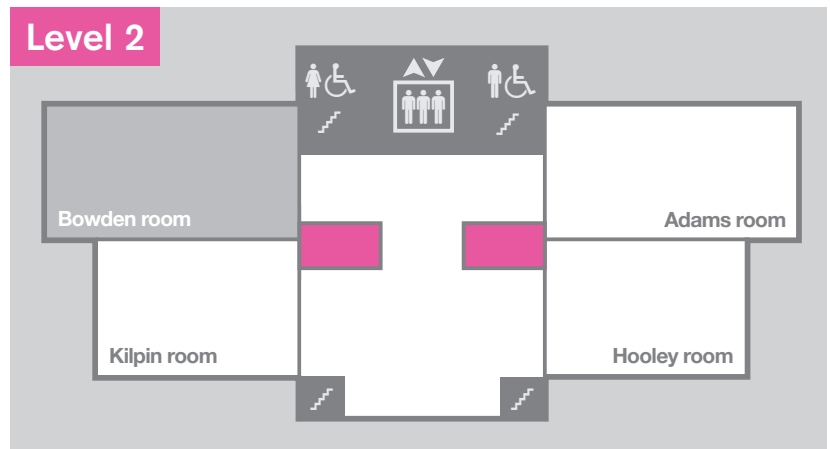
Professor Steve Morgan
Cyclops Principal Investigator

Venue layout

The workshop will take place in the Level 2 conference rooms.

Plenary sessions take place in the Adams room.

Breakout sessions are in Adams, Kilpin and Hooley rooms.



Refreshments

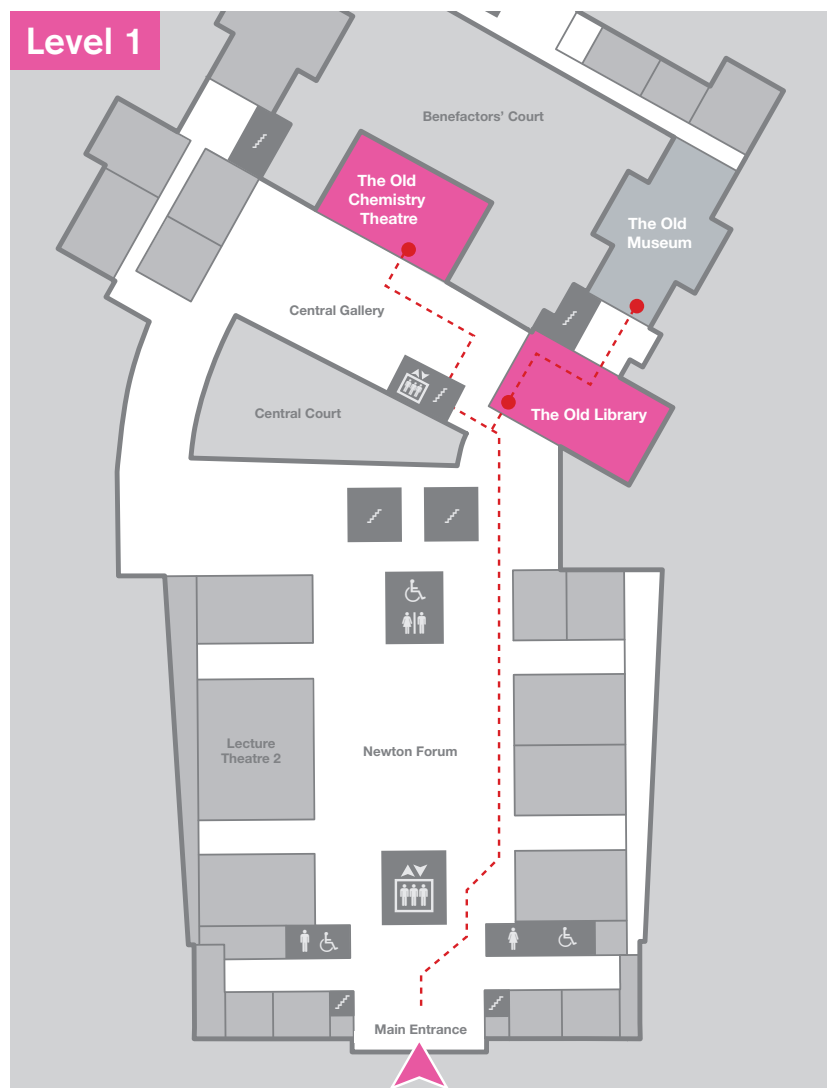
Coffee breaks are held in the refreshment hubs, adjacent to the breakout rooms (marked in pink in the map above).

Lunches are held in The Old Library, accessed via the Central Court on Level 1.

The workshop **drinks reception and dinner** is in The Old Chemistry Theatre – the very room where silicone was invented! This is on level 0 down the stairs from the Old Library. The main entrance closes in the evenings – please enter via the Goldsmith Street entrance.

Wifi

Use NTU Guest network.
You do not need a password.



Agenda

Monday 20th March 2017

10:00	Session 1 – Chaired by Professor Steve Morgan, University of Nottingham Cyclops Healthcare Network launch – Dr Sergiy Korposh, University of Nottingham
10:15	Keynote address – Maureen McCue, Head of Research and Technology – Aerospace, BAE Systems
11:00	Overview of clinical needs in the clinical exemplar areas: <ul style="list-style-type: none"> ▪ Intensive care – Professor Jon Hardman, Consultant Anaesthetist, Nottingham University Hospitals NHS Trust ▪ Chronic wound care – Professor Lt Col Steve Jeffery, Consultant Burns and Plastic Surgeon at the Queen Elizabeth Hospital, Birmingham ▪ Cancer care – Professor Poulam Patel, Clinical Oncology, Nottingham University Hospitals NHS Trust
11:45	Break
12:15	Session 2 – Chaired by Professor Declan Bates, University of Warwick Overview of the latest developments and gaps in three technical areas which have potential opportunity to apply to the closed loop approach to treatment <ul style="list-style-type: none"> ▪ Novel treatment – Associate Professor Kris Thurecht, University of Queensland, Australia ▪ Modelling – Professor Helen Byrne, University of Oxford ▪ Monitoring – Professor Steve Morgan, University of Nottingham Introduction to the breakout sessions – Rob Watling, Momentum Associates
13:10	Lunch – Old Library
14:10	Breakout sessions. Delegates spend half an hour exploring each of the clinical exemplar areas: <ul style="list-style-type: none"> ▪ Intensive care led by Professor Andy Norris, Nottingham University Hospitals NHS Trust and Professor Declan Bates, University of Warwick – Adams Room ▪ Chronic wound care led by Professor Steve Jeffery, Queen Elizabeth Hospital, Birmingham, and Professor Steve Morgan, University Of Nottingham – Hooley Room ▪ Cancer care led by Professor Poulam Patel, Nottingham University Hospitals NHS Trust and Professor Helen Byrne, University of Oxford – Kilpin Room

Monday 20th March 2017 continued

15:45	Break
16:15	Session 4 – Summary of breakouts, given by the leads of each clinical area (Adams Room)
16:55	One minute pitches – Delegates will each have the opportunity to summarise their expertise and what collaborations they are looking for to develop a feasibility study
17:50	End of delegate programme for Day 1
18:45	Drinks reception with magician and mind reader Looch (Old Chemistry Theatre) **Please enter through Goldsmith Street entrance** Dinner will be served from 19:30

Tuesday 21st March 2017

09:30	Session 5 – Welcome back – Professor Steve Morgan
09:35	Strategy and funding opportunities in Healthcare Technologies – Dr Mark Tarplee, Portfolio Manager, Healthcare Technologies, EPSRC
10:00	How CHEATA can support healthcare technologies proposals – Beth Beeson, Director of CHEATA, Consultant Clinical Scientist, Nottingham Universities Hospitals NHS Trust
10:10	Launch of the Cyclops call – Dr Tanya McCallum, Healthcare Technologies Programme Manager, University of Nottingham
10:20	Break and networking
10:45	Flexible time for building collaborations and proposal planning. (Adams, Hooley and Kilpin rooms)
12:30	Project outlines – Groups will be invited to present a brief outline of their concepts / proposals for closed loop approaches to treatment (Adams Room) Closing remarks
13:00	Lunch – Old Library
14:00	Conference close

Our speakers

Professor Steve Morgan is Professor of Biomedical Engineering at the University of Nottingham and Co-Director of the Centre for Healthcare Technologies. His research focuses on the development of novel optical devices to monitor the microcirculation for application in tissue breakdown and wound healing. He is Principal Investigator of the Cyclops Healthcare Network and is leading the clinical exemplar area of wound care.



Professor Jon Hardman is clinical professor in anaesthesia and critical illness at the University of Nottingham, and a consultant anaesthetist in the NHS. His research focuses on the modelling of human pathophysiology including the application of modelling to anaesthesia and critical care. He is a Co-Investigator of Cyclops and is co-leading the clinical exemplar area of Intensive Care.



Dr Sergiy Korposh is a Lecturer in Electronics, Nanoscale Bioelectronics and Biophotonics at the University of Nottingham. His research focuses on the development and fabrication of chemical sensors based on a range of sensing platforms modified with functional nano-materials. Sergiy is the Network Director of Cyclops.



Professor Lt Col Steven Burns is a military consultant burns and plastic surgeon at the Queen Elizabeth Hospital, Birmingham. Steve has extensive experience of the management of burns and wounding and specialises in the assessment and treatment of scarring, traumatic wounds, burns and pressure sores. He is Professor of Wound Study at Birmingham City University, is Director of the NIHR WoundTec Healthcare Technology Cooperative and is also a Patron to the Charity RAFT. In 2011 he was awarded the Wounds UK 'Key Contribution Award' and the Military Civilian Health Partnership award 'Regular of the year'.



Born in Barrow in Furness, **Maureen McCue** started an engineering career at 16 as an apprentice in a shipyard. She obtained a degree in Electrical and Electronic Engineering from Salford University and received the Horlock scholarship which encouraged young women to pursue engineering careers. She has worked in the aerospace industry since the 1980's and is currently Head of Research and Technology within BAE SYSTEMS air sector where she manages a diverse portfolio of research projects with the overall aim of improving the current generation of products and underpinning the next generation of products. In December 2016, Maureen oversaw the successful trials of an autonomous aeroplane that uses cameras and algorithms to replicate the vision and mental processing that a pilot would normally do on a manned aircraft.



Professor Poulam Patel has been a Professor of Clinical Oncology for 13 years with Nottingham University Hospitals NHS Trust and with The University of Nottingham. His areas of speciality are kidney cancer, malignant melanoma and cancer vaccines.



Professor Declan Bates is Professor of Bioengineering at the University of Warwick and Co-Director of the Warwick Integrative Synthetic Biology Centre. His research focuses on the modelling, analysis, control and design of complex biological systems. He is experienced in the validation and verification of safety-critical systems. Declan is a Co-Investigator of the Cyclops network and is co-leading the clinical exemplar area of Intensive Care.



Associate Professor Kris Thurecht

leads a research team the Centre for Advanced Imaging at the University of Queensland, Australia. His research focusses on the development of polymer and nanoparticle-based devices for nanomedicine. Kris's team works across the boundaries of chemistry and materials, biology and imaging science to probe how nanomaterial properties affect their function in living animals.



Dr Mark Tarplee is a Portfolio Manager within the Healthcare Technologies Theme at the Engineering and Physical Sciences Research Council (EPSRC). He manages the Medical Imaging research area, is the primary Fellowships/Early Career Researcher theme contact and is the Optimising Treatment Grand Challenge champion.



Professor Helen Byrne is Professor of Mathematical Biology at the Mathematical Institute, University of Oxford. Her research focuses on the development and analysis of mathematical and computational models that describe biomedical systems, with particular application to the growth and treatment of solid tumours, wound healing and tissue engineering. Helen is a Co-Investigator of the Cyclops network and is leading the clinical exemplar area of cancer care.



Beth Beeson is a Consultant Clinical Engineer at Nottingham University Hospitals NHS Trust and is also a Director of CHEATA - Centre for Healthcare Equipment and Technology Adoption. As a registered Clinical Scientist and a Chartered Engineer, Beth has over 10 years of experience in the field of Clinical Engineering including; application and management of medical devices, medical device safety and governance. Beth has particular skills, experience and interest in medical device regulation and is driven by the desire to enable patients and users to access innovative healthcare technology, creating better outcomes whilst supporting improved healthcare system benefits.



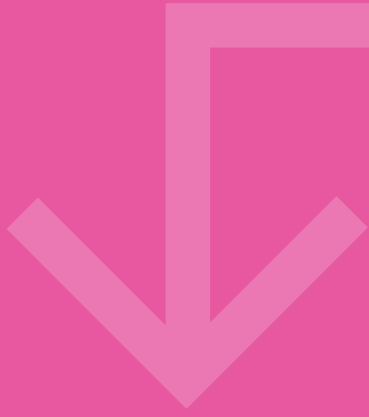
Dr Andy Norris has been a consultant anaesthetist at Nottingham University Hospitals NHS Trust for 20 years and has been involved in innovative technology projects including funding from NIHR i4i. Andy is a member of The University of Nottingham's Health Technology Research Priority Area management board and is a clinical advisor to the Centre for Healthcare Technologies. He believes strong clinician engagement in the development of innovative technologies is essential.



Dr Tanya McCallum co-manages the Centre for Healthcare Technologies at The University of Nottingham having recently managed the University's EPSRC Impact Acceleration Account. After an early career as an aerodynamics engineer Tanya spent 13 years in innovation and research strategy management in the railway industry bringing together academics and industry to solve railway challenges. She now hopes to use this experience to support healthcare challenges.



The workshop is being facilitated by Momentum Associates with Rob Watling, Judith Underhill and Nicky James.



Cyclops Healthcare Network

www.healthcaretechnologies.co.uk/cyclops

 @CentHealthTech
#CyclopsHealthNet

For more information, contact

Tanya McCallum

e: info@healthcaretechnologies.co.uk

t: 0115 74 84046