

The 2016 UKACC International Conference on Control (UKACC Control 2016)

Queen's University Belfast

Belfast, UK

31 August - 2 September 2016



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GREETINGS FROM THE CONFERENCE CHAIRS

On behalf of the Conference Organising Committee, it is our great pleasure to welcome you to the 2016 UKACC (United Kingdom Automatic Control Council) International Conference on Control (UKACC Control 2016). UKACC Control 2016, the 11th in this now well established series of prestigious biennial events, is being held for the first time this year in the historic city of Belfast, Northern Ireland, with the Energy, Power and Intelligent Control Research Cluster at Queen's University Belfast as the host. We hope you will enjoy your time in Belfast and Northern Ireland and find the conference stimulating and fruitful.

The technologies in automatic control have been playing important roles in our modern civilization for many decades and continue to be at the forefront of innovation today in areas such as autonomous vehicles, green transport, renewable energy, next generation manufacturing, Industry 4.0, healthcare, assisted living technologies and cooperative robotics. Since the first UKACC Control Conference took place in Exeter University in 1996, this conference series has provided an international platform for researchers, engineers, academicians, as well as industrial professionals from all over the world, to present their research results and development activities in automatic control in these and many other exciting areas, with the aim of promoting the development of automatic control, strengthening international academic cooperation and communication, and facilitating the exchange of research ideas.

The UKACC Control 2016 received 164 paper submissions from 25 countries with more than 130 registrations. With the tremendous work of the members of the International Program Committee, the final program has an exciting set of technical sessions covering the latest research and development results in automatic control. It contains a number of high level theoretical papers as well as many interesting application papers.

The highlights of the conference include:

- 3 keynote lectures by internationally leading researchers. Professor Tianyou Chai from Northeastern University, China will present a keynote on “Smart optimization control

system for energy-intensive equipment”, Professor John Ringwood from Maynooth University, Ireland will talk about “Optimising the Performance of Wave Energy Systems”, and Professor Er-Wei Bai from University of Iowa, USA will speak on “Target/Source Localization by a Network of Imperfect Binary Sensors”.

- A 3-day UK-China workshop on shaping a low carbon energy future which is taking place immediately prior to Control 2016, and is free-of-charge for conference delegates if they wish to attend. The workshop aims to generate innovative ideas and develop holistic approaches for shaping a low carbon energy future, which will inform UK-China collaborations on energy research in delivering impact, shaping capability and training future leaders. It features keynote speeches, training activities, technical presentations and posters, panel discussions, break-out sessions, industrial visits, networking events and social visits. The workshop will also mark the launch of a joint laboratory on electric vehicles and smart grid founded by seven institutions and industrial partners from UK and China through the EPSRC-NSFC iGIVE project, and it complements the exchanges already occurring through the RCUK-funded UK-China Science Bridge on sustainable energy and built environment, previously highlighted when the Chinese Vice-Premier Madam Yandong Liu visited Northern Ireland in 2012.
- 2 pre-conference workshops targeting ‘Intelligent computing and control for networked systems’ and ‘Smart grids and electric vehicles’ and are also free to attend to all conference delegates.
- 1 pre-conference postgraduate networking and training workshop.
- Three mini symposia, one organized by the IET on ‘Applications of Biomedical Modelling and Control’, one co-organised by InstMC and IChemE on ‘Control Challenges facing the Rail and Process industries’ and one co-organised by Irish Manufacturing Research and Seagate on ‘Industry 4.0: Putting Theory into Practice’.

In addition to participating in the technical program, delegates are also cordially invited to attend the conference welcome reception and banquet, and are encouraged to explore the historic and vibrant city of Belfast which offers a unique combination of nice restaurants, pubs, hotels, and meeting venues in a spectacular setting.

We would like to take this opportunity to thank the organizing committee, the keynote speakers, the organizers of the special sessions, pre-conference workshops, mini-symposia and panel

session, the program committee and reviewers, the conference participants, and of course, all the contributing authors who will be sharing the results of their research during the conference. Our sincere thanks also go to the many volunteers who assisted with conference logistics.

Last but not least, we would like to express our sincere gratitude to all our sponsors, including our main conference sponsors - Kuka Robotics, Seagate, Irish Manufacturing Research, National Instruments, IEEE and IET, and the UK-China workshop sponsors - British Council Newton Fund through the Researcher Links Scheme, NSFC, and the UK Science & Innovation Network through the Global Partnerships Fund. Their generous support has helped make UKACC Control 2016 a success.

With our best wishes for a wonderful and stimulating experience in Belfast!



Seán McLoone
(General Chair)



Kang Li
(Program Chair)



Wasif Naeem
(Local Organising Chair)



Sarah Spurgeon
(IPC Chair)

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ORGANISING INSTITUTIONS

Organiser and Sponsor

Queen's University Belfast, UK

Technical Co-sponsors

The United Kingdom Automatic Control Council, UK (UKACC)

The Institution of Engineering and Technology, UK (IET)

The Institution of Chemical Engineers, UK (IChemE)

The Institute of Measurement and Control, UK (InstMC)

The Institute of Electrical and Electronics Engineers, USA (IEEE)

Industrial Co-Sponsors

KUKA Robotics, UK

Seagate, Ireland

Irish Manufacturing Research, Ireland

National Instruments, UK



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ORGANISING COMMITTEE

General Chair

Seán McLoone Queen's University Belfast

Program Chair

Kang Li Queen's University Belfast

Local Organising Chair

Wasif Naeem Queen's University Belfast

International Program Committee Chair

Sarah Spurgeon University of Kent

Special Sessions Chair

Stefano Longo Cranfield University

UKACC Chair

Eric Kerrigan Imperial College London

Publicity and Postgraduate Workshop Chair

Karen Rafferty Queen's University Belfast

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INTERNATIONAL PROGRAM COMMITTEE

Daniel Auger,	Cranfield University
Er-Wei Bai,	The University of Iowa
Victor M. Becerra,	University of Reading
Keith Burnham,	Coventry University
Yi Cao,	Cranfield University
Minyou Chen,	Chongqing University
Tongwen Chen,	University of Alberta
Wen-Hua Chen,	Loughborough University
Mingcong Deng,	Tokyo University of Agriculture and Technology
Dajun Du,	Shanghai University
Stephen Duncan,	Oxford University
Minrui Fei,	Shanghai University
Lingzhong Guo,	University of Sheffield
Qing-Long Han,	Swinburne University of Technology
William Heath,	University of Manchester
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Yang Liu,	Harbin Institute of Technology
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Andrew Plummer,	University of Bath
John Ringwood,	National University of Ireland Maynooth
Eric Rogers,	University of Southampton
John Rossiter,	The University of Sheffield
Sanjay Sharma,	Plymouth University
Sarah Spurgeon,	University of Kent
James Taylor,	University of Lancaster
Matthew Turner,	University of Leicester
Dianhui Wang,	La Trobe University
Hong Wang,	University of Manchester
Zidong Wang,	Brunel University
James Whidborne,	Cranfield University
Jianhua Zhang,	North China Electric Power University
Weixing Zheng,	Western Sydney University
Qing-Chang Zhong,	Illinois Institute of Technology
Quan Min Zhu,	University of the West of England

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INFORMATION ON CONFERENCE

Conference Venue

UKACC 2016 will be held in Riddel Hall, 185 Stranmillis Road, Belfast BT9 5EE.

Conference Registration

17:00-20:00, Tuesday, August 30th, 2016

08:00-09:00, Wednesday, August 31st, 2016

Hotel Reservations

Accommodation for the conference is arranged through our bespoke service put together by Visit Belfast. Take advantage of special conference rates and pay nothing until you arrive in Belfast at your chosen hotel. The following hotels and halls of residence are available at special conference rates:

- **Queen's Elms Village**, Belfast (Queens Elms, 78 Malone Rd, Belfast BT9 5BW). Tel: 028 9097 4403
- **Wellington Park Hotel**, Belfast (21 Malone Road, Belfast, BT9 6RU, Northern Ireland). Tel: 0044 28 9066 5410
- **Malone Lodge Hotel & Apartments**, Belfast (60 Eglantine Avenue, Malone Rd, Belfast BT9 6DY). Tel: 028 9038 8000
- **Ibis Belfast Queen's Quarter** (75 University St, Belfast BT7 1HL). Tel: 028 9033 3366
- **Holiday Inn Express Queens Quarter** (106A University St, Belfast BT7 1HP). Tel: 028 9031 1909

Transportation

Air

There are two airports serving Belfast:

George Best Belfast City Airport is just two miles from the city centre, served by a frequent Ulsterbus Airport Express 600 bus service to the city centre and its main bus and rail stations.

Belfast International Airport is nineteen miles from Belfast at Aldergrove. The Ulsterbus Airport Express 300 service connects with the city centre.

Additionally, Dublin International Airport, located approximately 100 miles to the south, provides connections to airports throughout Europe and further afield. The Ulsterbus Goldline Express 200 service travels between Belfast and the airport, with a journey time of a little under two hours.

Sea

Fast ferry services including Stena Line and P&O Ferries make multiple daily crossings from Northern Ireland to ports in Scotland and England:

Belfast Port is located approximately one mile from the city centre and can be reached by bus, taxi or on foot.

Larne Port lies approximately 20 miles east of Belfast, with bus and rail connections.

Coach

The following companies provide long-distance services to Belfast, including cross-channel routes and Belfast-Dublin:

- Ulsterbus (Northern Ireland and Irish services)
- Bus Eireann (UK and Irish services)
- National Express (UK and Irish services)

Rail

Rail connections are available from both the UK and Dublin.

- Irish Rail
- Network Rail: Travel information from UK
- NI Railways: Belfast-Dublin Enterprise service

Road

Northern Ireland enjoys a good road network. Motorway sections leave Belfast to the north (M2), the west (M1) and the east (M3). A city ring road, the Westlink makes it easy to navigate Belfast's traffic system. A good road link connects Belfast with Dublin in the Irish Republic to the south.

The main campus is easily and quickly reached from the city centre. View maps of Belfast and the surrounding area.

Bus

Local bus services within Belfast are provided by Translink Metro services. Long-distance express services across Northern Ireland are operated by Translink Ulsterbus.

Note: All Northern Ireland bus and rail services (NI Railways, Ulsterbus and Metro) are operated by Translink. For all timetable enquiries and further travel information, phone 028 90 66 66 30 (7am–8pm weekdays, Sat–Sun 8am–6pm) or view timetables and/or the journey planner.

Taxi

Taxis are relatively cheap and easily available. London-style metered cabs operate from airports and railway stations: private cabs are plentiful and can be booked by telephone. Not all private taxis have meters, so it is advisable to agree a fare before setting out.

Bicycle

The University campus is easily reached from the city centre (1.5 km) and most student accommodation including the Queen's Elms Village.

Bringing a bicycle on public transport: all ferries accept bicycles, usually free of charge. Train services will usually accept bicycles; often a small surcharge is made. Coach services are generally less willing to carry bicycles, although it is often discretionary; check first. The policy of airlines varies a lot, so again enquire before travelling.

The road system can be busy in and around Belfast, although pleasant cycling can be found on the Lagan Towpath (to Lisburn) and in the surrounding countryside.

Bicycle hire is available in Belfast - check with the Northern Ireland Tourist Board.

Foot

A fifteen-minute walk from the city centre brings you to the University campus.

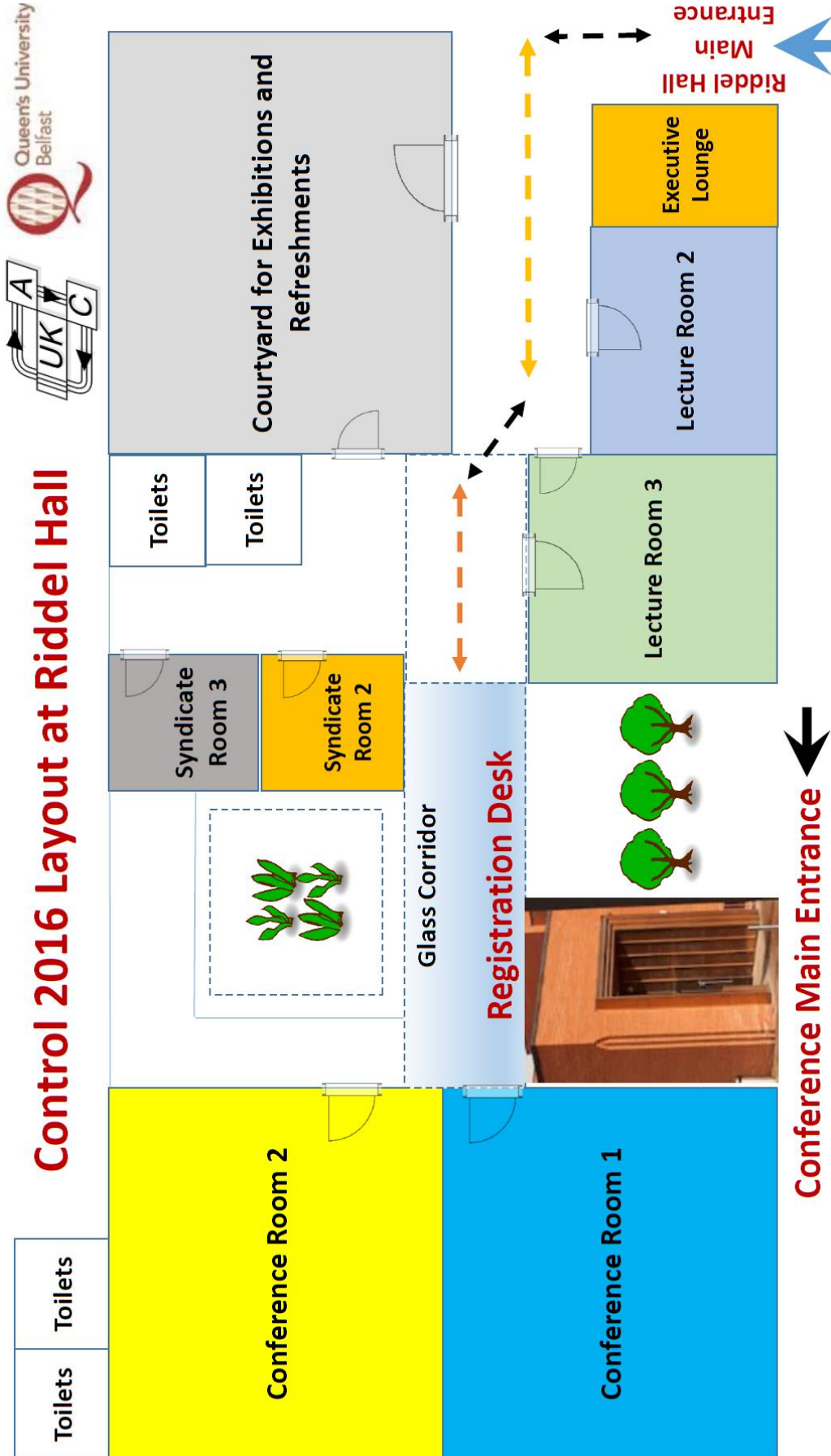
Parking at the University

Parking space at the University is limited and at a premium. It is advisable to make alternative arrangements or find on-street parking in the local area. However, if you require access to the campus by car because of a mobility restriction or disability, please contact the disability services officer in advance of your visit to arrange access.

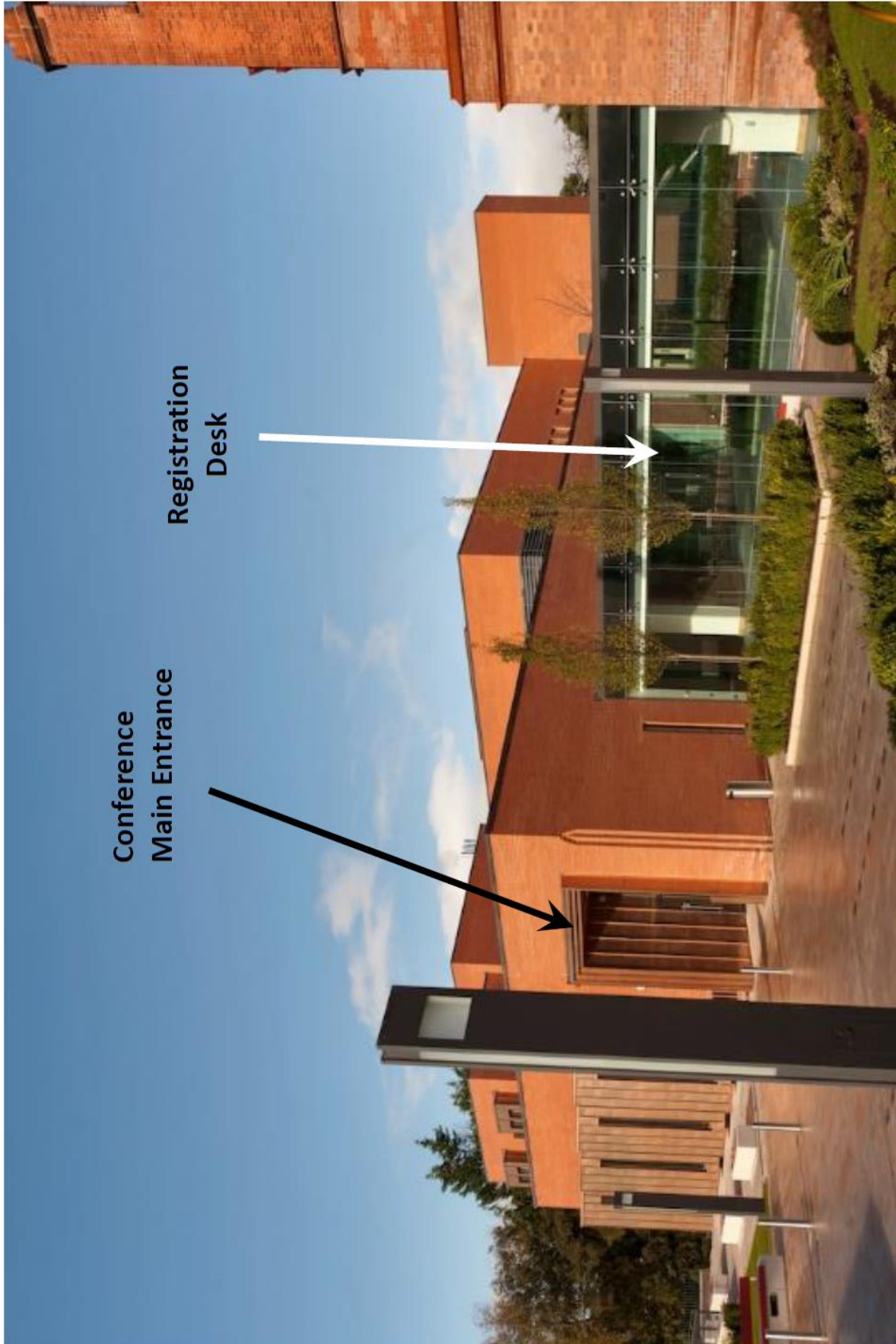
Free parking has been made available at Riddel Hall for all Control 2016 delegates on a first-come-first-serve basis.

Food

There will be a selection of vegetarian, non-vegetarian and halal options at the conference.









WI-FI AT RIDDEL HALL

Connecting to Cloud Wi-Fi is easy

1. You simply need to connect to our SSID: '_The Cloud' in the Wi-Fi settings of your device
2. Once connected, open your web browser and refresh the page
3. You will see The Cloud landing page and here you can login/register with your account
4. You will need to create an account the first time you login, using your email address. From then on The Cloud will automatically recognise your device in any hotspot.
5. The Cloud has thousands of hotspots across the UK, including many in Belfast city.

Once logged in you're good to go!

<http://www.thecloud.net/>

Present and Past of UKACC Control Conferences

Control 2016

Queen's University Belfast, 31 Aug- 2 Sep 2016

Control 2014

Loughborough University, 9-11 July 2014

Control 2012

University of Glamorgan, 3-5 September 2012

Control 2010

Coventry University, 7-10 September 2010

Control 2008

Manchester Conference Centre, 1-4 September 2010

Control 2006

Universities of Glasgow and Strathclyde, 30 Aug-1 Sep 2006

Control 2004

University of Bath, 6-9 September 2004

Control 2002

University of Sheffield, 10-12 September 2002

Control 2000

University of Cambridge, 4-7 September 2000

Control 1998

Swansea University, September 1998

Control 1996

Exeter University, September 1996

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KEYNOTE SPEECHES

Keynote Speech I:

Smart optimization control system for energy-intensive equipment

Professor Tianyou Chai

Northeastern University, China

Abstract:

China has abundance of mineral resources such as magnesite, hematite and bauxite, which constitute a key component of its economy. The relatively low grade and the widely varying and complex compositions of the raw extracts, however, pose difficult processing challenges including specialized equipment with excessive energy demands. The energy intensive furnaces together with widely uncertain features of the extracts form hybrid complexities of the system, where the existing modeling, optimization and control methods have met only limited success. Currently, the mineral processing plants generally employ manual control and are known to impose greater demands on the energy, while yielding unreasonable waste and poor operational efficiency. The recently developed Cyber-Physical System (CPS) provides a new key for us to address these challenges. The idea is to make the control system of energy intensive equipment into a CPS, which will lead to a smart optimization control system.

This talk presents the syntheses and implementation of a smart optimization control system for energy-intensive equipment under the framework of CPS. The proposed smart optimization control system consists of three main functions: (i) process control; (ii) setpoint optimization control; and (iii) fault diagnosis and self-recovery control. The key in realizing the above functions is the algorithm structure which is able to integrate control, optimization, fault diagnosis and self-recovery control together seamlessly. This talk introduces the algorithm structure for integrated implementation of setpoint optimization control, process control and fault diagnosis and self-recovery control.

Hardware and software platform of smart optimization control system for energy-intensive equipment is then briefly introduced, which adopts embedded control system, wireless network and industrial cloud. It not only realizes the functions of computer control system using DCS (PLS), optimization computer and fault diagnosis computer, but also achieves the functions of mobile and remote monitoring for industrial process.

Then, using fused magnesium furnace as an example, a hybrid simulation system for smart optimization control system for energy-intensive equipment developed by our team is introduced. The results of simulation experiments show the effectiveness of the proposed method that integrates the process control, setpoint optimization control and fault diagnosis and self-recovery control in the framework of CPS.

The industrial application of the proposed smart optimization control system is also discussed. It has been successfully applied to the largest magnesia production enterprise in China, resulting in great returns. Finally, future research on the smart optimization control system is outlined.

Speaker's Biography: Tianyou Chai received the Ph.D. degree in control theory and engineering in 1985 from Northeastern University, Shenyang, China, where he became a Professor in 1988. He is the founder and Director of the Centre of Automation, which became a National Engineering and Technology Research Center and a State Key Laboratory. He is a member of Chinese Academy of Engineering, IFAC Fellow and IEEE Fellow, director of Department of Information Science of National Natural Science Foundation of China. His current research interests include modelling, control, optimization and integrated automation of complex industrial processes. He has published 150 peer reviewed international journal papers. His paper titled Hybrid intelligent control for optimal operation of shaft furnace roasting process was selected as one of three best papers for the Control Engineering Practice Paper Prize for 2011-2013. He has developed control technologies with applications to various industrial processes. For his contributions, he has won 4 prestigious awards of National Science and Technology Progress and National Technological Innovation, the 2007 Industry Award for Excellence in Transitional Control Research from IEEE Multiple-conference on Systems and Control.



Keynote Speech II

Optimising the Performance of Wave Energy Systems

Professor John Ringwood,

Maynooth University, Ireland

Abstract: Wave energy aspires to play a part in the mix of renewable energy solutions addressing the world's increased energy demand, the limited fossil fuel supply and the concerns about greenhouse gas emissions and climate change. However, limited progress has been achieved in the commercial deployment of wave energy systems, mainly due to the relatively high cost of wave energy.

Since the ocean is a challenging environment for the deployment of energy harvesting technology, with consequently high capital and maintenance costs, it is vital that the utility of deployed technology is maximised. Optimisation and control have a significant part to play in the drive to make wave energy economic and this keynote talk explores the challenges of applying control technology to wave energy systems.

The talk will offer some background to wave energy systems and present aspects where control and optimisation can make potential improvements. In addition to the more obvious application of control to maximise energy capture, wave forecasting methods are also required to address non-causality in the control solution, while a strong interaction between the control algorithm and the optimal wave device energy geometry, and optimal array layout, is also shown.

Speaker's Biography: John Ringwood is currently the Professor of Electronic Engineering and Director of the Centre for Ocean Energy Research at Maynooth University, a past Head of the Electronic Engineering Dept. and previously Dean of Engineering at Maynooth University. He has previously held appointments at Dublin City University and visiting positions at Massey University and Auckland University. His research interests are mainly focussed in the area of modelling and control of dynamic systems and their applications in industry and human health. Since 2002, he has been involved in the development of control technology to enhance the performance of wave energy systems, as part of the effort to make wave energy economically viable. He is/was guest editor on special issues for ocean energy of the IFAC Annual Control Reviews, IEEE Trans. on Sustainable Energy, Ocean



Engineering and Marine Energy and Energies journals and co-author of the book Hydrodynamic Control of Wave Energy Devices, along with Umesh Korde. He holds the Hons DipEE from Dublin Institute of Technology, the BSc (Eng) in Electrical Engineering from Trinity College Dublin, the MA in Music Technology from Maynooth University and the PhD in Control Engineering from Strathclyde University. He is a chartered engineer and Fellow of Engineers Ireland and a Senior Member of IEEE.

Keynote Speech III

Target/Source Localization by a Network of Imperfect Binary Sensors

Professor Er-Wei Bai

University of Iowa, USA

Abstract: In this talk, target/source localization by a network of binary sensors under various imperfections are studied. Detailed analysis and mathematical modelling of imperfect binary sensors are presented which include sensor failures of two types, uncertainty and heterogeneity in trigger thresholds, presence of noise and non-radial symmetry of sensing ranges. In particular, effects of outliers and ways to reduce/eliminate the effects are discussed. Numerical algorithms with convergence and asymptotic normality results are derived. Further a number of interesting insights are provided.

Speaker's Biography: Prof. Er-Wei Bai received his PhD degree from the University of California at Berkeley. He is currently Professor and Chair of Electrical and Computer Engineering Department, and Professor of Radiology at the University of Iowa where he teaches and conducts research in identification, control, signal processing, cyber-physical systems and their applications in engineering and life science problems. He was a World Class Research Professor at the School of Electronics, Electrical Engineering and Computer Science, Queen's University, Belfast 2012-2014. Prof. Bai is an IEEE Fellow and has served IEEE and IFAC in various capacities. He is a recipient of the President's Award for Teaching Excellence and the Board of Regents Award for Faculty Excellence.



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MINI-SYMPOSIA

Three mini symposia as listed below are organised at Control 2016 where conference delegates will find a mixture of speakers from industry and academia presenting their research to the control community.

IET Mini-Symposium

Title: *Applications of Biomedical Modelling and Control*

Chair: James Taylor (Lancaster University)

Organiser: The Institution of Engineering and Technology (IET)

InstMC/ICHEME Mini Symposium

Title: *Control Challenges facing the Rail and Process Industries*

Chairs: Keith Burnham (University of Wolverhampton) & Ognjen Marjanovic (The University of Manchester)

Organiser: The Institute of Measurement and Control (InstMC) and Institute of Chemical Engineers (ICHEME)

Industry 4.0 Mini Symposium

Title: *Industry 4.0: Putting Theory into Practice*

Chair: Micheal Cassidy (Irish Manufacturing Research)

Organisers: Seagate and Irish Manufacturing Research, Ireland

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PROGRAM AT A GLANCE

August 29, 2016

14:30 - 15:50 Session WS-1A Workshop 1: Batteries, electric vehicles, and their integrations with grid	14:30 - 15:50 Session WS-1B Workshop 2: Thermal power generation, power system control, power electronics, and motor drive	14:30 - 15:50 Session WS-1C Workshop 3: Renewable generation, and integration of renewable power
15:50-16:10 Coffee Break		
16:10-17:55 Session WS-2A Workshop 4: Networked control and applications in power systems	16:10-17:40 Session WS-2B Workshop 5: Operation and control of power systems, smart grid, micro grid, and distributed energy system	16:10-17:40 Session WS-2C Workshop 6: Sensor network and data analytics in power and energy systems

August 30, 2016

17:00 - 20:00 (Conference Rooms 1 & 2) Registration

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PROGRAM AT A GLANCE

August 31, 2016

08:00 - 09:00 Registration and Welcome			
09:00 - 09:15 Welcome address (Conference Rooms 1 & 2)			
09:15 - 10:15 Keynote speech 1 - Prof Tianyou Chai (Conference Rooms 1 & 2)			
10:15 - 10:30 Coffee Break			
10:30 - 12:30 (Conference Room 1) Session 4A SS1: Control and forecasting techniques for wave energy systems		10:30 - 12:30 (Conference Room 2) Session 4B InstMC and IChemE Mini Symposium	
12:30 - 13:30 Lunch Break			
13:30 - 15:30 (Conference Room 1) Session 5A Autonomous Systems and Robotics	13:30 - 15:30 (Conference Room 2) Session 5B Control System Design Methods (I)	13:30 - 15:30 (Lecture Room 3) Session 5C Modelling and Simulation Tools for Control	
15:30-15:50 Coffee Break			
15:50 - 17:50(Conference Room 1)Session 6ANetworked Control Systems and Applications	15:50 - 17:50(Lecture Room 3)Session 6BFault Detection and Condition Monitoring	15:50 - 17:50(Lecture Room 2)Session 6CIndustrial Process Applications of Control	15:50 - 17:50(Conference Room 2)Session 6DSS2: Advanced Modeling, Optimization and Control for Energy and Power Generation/ Transmission Systems
18:00 - 19:00 (Conference Rooms 1 & 2) Session 7 Panel discussion - challenges and opportunities in control engineering			

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PROGRAM AT A GLANCE

September 1, 2016

09:00 - 10:00 (Conference Rooms 1 & 2) Session 8 Keynote speech 2 - Professor John Ringwood			
10:00 - 10:30 Coffee Break			
10:30 - 12:30 (Conference Room 1) Session 9A IET Mini Symposium: Applications of Biomedical Modelling and Control		10:30 - 12:30 (Conference Room 2) Session 9B Industry 4.0 Mini Symposium: Putting Theory Into Practice	
12:30 - 13:30 Lunch Break			
13:30 - 15:30 (Conference Room 2) Session 10A SS3: Applications of MATLAB and Simulink with hardware	13:30 - 15:30 (Lecture Room 3) Session 10B Renewable Energy, Smart Grid and Environmental Systems	13:30 - 15:30 (Lecture Room 2) Session 10C System Identification and Big Data	13:30 - 15:30 (Conference Room 1) Session 10D Control System Design Methods (II)
15:30 - 15:50 Coffee Break			
15:50 - 17:30 (Conference Room 1) Session 11A Control Applications in Transportation	15:50 - 17:30 (Lecture Room 3) Session 11B Algorithms and Architectures of Control Systems	15:50 - 17:30 (Conference Room 2) Session 11C SS4: Virtual Reality and Robotics	15:50 - 17:30 (Lecture Room 2) Session 11D Nonlinear Control Systems Design
17:30 - 18:30 (Lecture Room 3) Session 12 UKACC Committee meeting			
19:30 - 21:30 (The Great Hall at Belfast City Hall) Session Conference Banquet at Belfast City Hall			

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PROGRAM AT A GLANCE

September 2, 2016

09:00 - 10:00 (Conference Rooms 1 & 2) Session 13 Keynote speech 3 - Professor Erwei Bai		
10:00 - 11:00 (The Courtyard Catering Area) Session 14 Poster session and refreshments		
11:00 - 13:00 (Conference Room 1) Session 15A Artificial Intelligence in Control	11:00 - 13:00 (Lecture Room 3) Session 15B Advanced Control and Informatics	11:00 - 13:00 (Conference Room 2) Session 15C SS5: Recent Advances in Spacecraft Modelling and Control
13:00 - 14:00 Lunch and Closing Ceremony		

**The 2016 UKACC International Conference on Control
(UKACC Control 2016)
Pre-conference Workshop
Belfast, UK, 29 August 2016**

Monday, 29 August

Monday

14:30-15:50 Session WS-1A Lanyon Building 01/052

Workshop 1: Batteries, electric vehicles, and their integrations with grid

Chairs: Yu Jilai (Harbin Institute of Technology, China)

Patrick Luk (Cranfield University, UK)

14:30 Kailong Liu (Queen's University Belfast, UK)

Kang Li (Queen's University Belfast, UK)

Jing Deng (Queen's University Belfast, UK)

[ID149-A novel hybrid data-driven method for Li-ion battery internal temperature estimation](#)

14:50 Qiwei Xu (Chongqing University, China)

Shumei Cui (Harbin Institute of Technology, China)

[ID131-Comparison Analysis of Power Management used in Hybrid Electric Vehicle based on Electric Variable Transmission](#)

15:10 Aina Tian (Harbin Institute of Technology, China)

Weixing Li (Harbin Institute of Technology, China)

Wenhuan Hao (Harbin Institute of Technology, China)

[ID89-An Adaptive Aggregation Impedance EVs Charging Load Model](#)

15:30 Liu Peng (Harbin Institute of Technology, China)

Yu Jilai (Harbin Institute of Technology, China)

[ID70-Charging Behavior Characteristic Simulation of Plug-in Electric Vehicles for Demand Response](#)

15:50 Yufeng Guo (Harbin Institute of Technology, China)

Yi Jiang (Harbin Institute of Technology, China)

Jilai Yu (Harbin Institute of Technology, China)

Yaohua Tang (Institute State Grid Hennan Electric Power Company, China)

[ID30-Service Life of EV Batteries Used in Power Grid Frequency Regulation](#)

Monday**14:30-15:50 Session WS-1B****Lanyon Building 0G/049****Workshop 2: Thermal power generation, power system control, power electronics, and motor drive**

Chairs: Shumei Cui (Harbin Institute of Technology, China)

Dajun Du (Shanghai University, China)

14:30 Tuopu Na (Harbin Institute of Technology, China)

Qianfan Zhang (Harbin Institute of Technology, China)

Chaowei Zhou (Harbin Institute of Technology, China)

[**ID112-Modeling and Design of Quasi-Z-Source Inverter for PMSM Drive System**](#)

14:50 Kaixuan Zhang (Harbin Institute of Technology, China)

Ruiye Liu (Harbin Institute of Technology, China)

Zhizhong Guo (Harbin Institute of Technology, China)

[**ID49-Non-linear Time-delay Robust Control for Steam Turbine Generator Units**](#)

15:10 Yanliang Cui (Shanghai University, China)

Minrui Fei (Shanghai University, China)

Dajun Du (Shanghai University, China)

[**ID16-Convergence rate controllable event-triggered robust load frequency control for multi-area power systems**](#)

15:30 Zhi Kuang (Harbin Institute of Technology, China)

Tianxu Zhao (Harbin Institute of Technology, China)

Shumei Cui (Harbin Institute of Technology, China)

[**ID10-Five-Phase Permanent Magnet Synchronous Motor Drive for Aircraft Application**](#)**Monday****14:30-15:50 Session WS-1C****Lanyon Building Old Staff Common Room****Workshop 3: Renewable generation, and integration of renewable power**

Chairs: Qianfan Zhang (Harbin Institute of Technology, China)

Jun Cao (Northern China Electric Power University, China)

14:30 Xiandong Xu (Queen's University Belfast, UK)

Kang Li (Queen's University Belfast, UK)

Yang Liu (Harbin Institute of Technology, China)

Hongjie Jia (Tianjin University, China)

[**ID111-Integrated Optimal Power Flow for Distribution Networks in Local and Urban Scales**](#)

- 14:50 Zhile Yang (Queen's University Belfast, UK)
Kang Li (Queen's University Belfast, UK)
Lidong Zhang (Northeast Dianli University, China)
[ID137-Binary Teaching-Learning Based Optimization for Power System Unit Commitment](#)
- 15:10 Jun Cao (Northern China Electric Power University, China)
Yi Ge (Jiangsu Electric Power Company, China)
Hui Cai (Jiangsu Electric Power Company, China)
B.W. Zhou (Dongbei University, China)
[ID177-Enhanced Corrective Security Constrained OPF with Hybrid Energy Storage Systems](#)
- 15:30 Huihui Song (Harbin Institute of Technology at Weihai, China)
Qi Zhang (Harbin Institute of Technology at Weihai, China)
Yanbin Qu (Harbin Institute of Technology at Weihai, China)
Xinyu Wang (Harbin Institute of Technology at Weihai, China)
[ID114-An Energy-based LVRT Control Strategy for Doubly-Fed Wind Generator](#)

Monday

16:10-17:55 Session WS-2A Lanyon Building 01/052

Workshop 4: Networked control and applications in power systems

Chairs: [Minrui Fei](#) (Shanghai University, China, China)
Taicheng Yang (University of Sussex, UK)

- 16:10 [Wen Song](#) (Tongji University, China)
[Hao Zhang](#) (Tongji University, China)
[Huaicheng Yan](#) (East China University of Science and Technology, China)
[Chen Peng](#) (Shanghai University, China)
[ID166-Distributed Event Triggered H_∞ infinity Filtering With Nonhomogeneous Markov Switching Topologies](#)
- 16:25 [Min Zheng](#) (Shanghai University, China)
[Yijie Zhang](#) (Shanghai University, China)
[ID103-New improvements on event-triggered communication and H₁ analysis for networked control systems](#)
- 16:40 [Dajun Du](#) (Shanghai University, China)
[Guohua Zhan](#) (Shanghai University, China)
[Bo Qi](#) (Shanghai University, China)
[Minrui Fei](#) (Shanghai University, China)
[ID68-Based on H₂/H_∞ infty Filtering Control for Wireless Network with Multi-channel Network-induced Delays Constraints](#)
- 16:55 [Zhenglong Huang](#) (Shanghai University, China)
[Yang Song](#) (Shanghai University, China)

[Li Jia](#) (Shanghai University, China)

[Min Zheng](#) (Shanghai University, China)

[T. C. Yang](#) (Engineering and Design, University of Sussex, UK)

ID66-Stabilization of Markov Jump Linear Systems Over Gaussian Relay Channel

17:10 [Sheng Xu](#) (Shanghai University, China)

[Minrui Fei](#) (Shanghai University, China)

[Dajun Du](#) (Shanghai University, China)

[Liqin Wu](#) (Nantong Vocational University, China)

ID63-WICCNS2016 Output control of TCP/AQM network system with time-varying delay

17:25 [Jin Zhang](#) (Shanghai University, China)

[Chen Peng](#) (Shanghai University, China)

[Suhail Masroor](#) (Shanghai University, China)

[Hongtao Sun](#) (Shanghai University, China)

[Lin Chai](#) (Southeast University, China)

ID59-Stability analysis of networked control systems with denial-of-service attacks

17:40 [Xiaowei Yang](#) (Nantong University, China)

[Jianguo Wu](#) (Nantong University, China)

[Kun Zhang](#) (Nantong University, UK)

[Peijian Zhang](#) (Nantong University, China)

[Conghua Xie](#) (Changshu Institute of Technology, China)

ID46-Research on Machine Vision based Networked Supervisory Control System

Monday

16:10-17:40 Session WS-2B

Lanyon Building 0G/049

Workshop 5: Operation and control of power systems, smart grid, micro grid, and distributed energy system

Chairs: [Chen Peng](#) (Shanghai university, China)

Shuai Deng (Tianjin University, China)

16:10 [Weihua Deng](#) (Shanghai University of Electric Power, China)

[Jing Deng](#) (Queen's University Belfast, UK)

[Pengfei Chen](#) (Shanghai University of Electric Power, China)

ID181-Stability analysis and control of the microgrid control system with inverse Gaussian distribution delays

16:30 [Yan Wang](#) (Tianjin University, China)

[Shuai Deng](#) (Tianjin University, China)

[Ying Zhang](#) (Tianjin University, China)

[Li Zhao](#) (Tianjin University, China)

[Dan Wang](#) (Tianjin University, China)

[Yunfei Mu](#) (Tianjin University, China)

ID176-Dynamic Match Optimization:Emerging control concept of sustainable distributed energy system

16:50 [Haiping Ma](#) (Zhejiang University, China)

[Zhile Yang](#) (Queen's University Belfast, UK)

[Pengcheng You](#) (Zhejiang University, China)

[Minrui Fei](#) (Shanghai University, China)

ID168-Complex System Optimization for Economic Emission Load Dispatch

17:10 [Chengcheng Li](#) (Nantong University, China)

[Jianguo Wu](#) (Nantong University, China)

[Xiang Dai](#) (Enpower Energy Co., Ltd., China)

[Kun Zhang](#) (Nantong University, China)

[Sheng Xu](#) (Shanghai University, China)

ID43-Improved Droop Control based Voltage Compensation and Variable Droop Coefficient in DC Microgrids

Monday

16:10-17:40 Session WS-2C

Lanyon Building Old Staff Common Room

Workshop 6: Sensor network and data analytics in power and energy systems

Chairs: [Wasif Naeem](#) (Queen's University, UK)

[Lidong Zhang](#) (Northeast Dianli University, China)

16:10 [Juan Yan](#) (Queen's University Belfast, UK)

[Kang Li](#) (Queen's University Belfast, UK)

[Xiaodong Zhao](#) (Queens University Belfast, UK)

ID167-On temporal resolution selection in time series wind power forecasting

16:30 [Lidong Zhang](#) (Northeast Dianli University, China)

[Lijiao Ma](#) (Northeast Dianli University, China)

[Kang Li](#) (Queen's University Belfast, UK)

[Shaojun Gan](#) (Chongqing University, China)

[Juan Yan](#) (Queen's University Belfast, UK)

[Xiandong Xu](#) (Queen's University Belfast, UK)

[Mingliang Zhu](#) (Jilin East Power Engineering Co., Ltd, China)

[Weiwei Li](#) (Huaneng Chaohu Power Generation Co. Ltd, China)

ID165-NARX models for predicting power consumption of a horizontal axis wind turbine

16:50 [Yuanjun Guo](#) (High Performance Computing Centre, China)

[Shengzhong Feng](#) (High Performance Computing Centre, China)

[Kang Li](#) (Queen's University Belfast, UK)

[Wenxiong Mo](#) (Guangzhou Power Supply Co. Ltd., China)

[Yuquan Liu](#) (Guangzhou Power Supply Co. Ltd., China)

[Yong Wang](#) (Guangzhou Power Supply Co. Ltd., China)

ID174-Big Data Processing and Analysis Platform for Condition Monitoring of Electric Power System

17:10 [Nan Xiong](#) (Shanghai University, China)

[Minrui Fei](#) (Shanghai University, China)

ID60-Simulation of Gossip Averaging based Clock Synchronization Protocol for Wireless Sensor Networks

17:30 [Li Liu](#) (Shanghai University, China)

[Aolei Yang](#) (Shanghai University, China)

[Minrui Fei](#) (Shanghai University, China)

[Xiaowei Tu](#) (Shanghai University, Canada)

[Wasif Naeem](#) (Queen's University Belfast, UK)

ID44-Distributed Fusion Estimation for Uncertain Systems with Cross-correlated Noises and Transmission Delays

The 2016 UKACC International Conference on Control (UKACC Control 2016)

Belfast, UK, 31 August - 2 September 2016

TECHNICAL PROGRAM

Wednesday, 31 August

Wednesday

09:15-10:15 Session 3 Conference Rooms 1 & 2

Keynote speech 1: Smart optimization control system for energy-intensive equipments

Speaker: Tianyou Chai (Northeastern University, China)

Chair: Kang Li (Queen's University Belfast, UK)

Wednesday

10:30-12:30 Session 4A Conference Room 1

SS1: Control and forecasting techniques for wave energy systems

Chairs: John Ringwood (Maynooth University, Ireland)

Ron Patton (University of Hull, UK)

10:30 Romain Genest (Maynooth University, Ireland)

John Ringwood (Maynooth University, Ireland)

[**ID102-An Evaluation of Receding Horizon Pseudospectral Optimal Control for Wave Energy Conversion**](#)

10:50 Dhruv R.S. Chandel (University of Bath, UK)

Nathan P. Sell (University of Bath, UK)

Andrew R. Plummer (University of Bath, UK)

Andrew J. Hillis (University of Bath, UK)

[**ID22-Discrete Control of an Oscillating Wave Surge Converter**](#)

11:10 Ming Ge (Imperial College London, UK)

Eric Kerrigan (Imperial College London, UK)

[**ID26-Short-term Ocean Wave Forecasting Using an Autoregressive Moving Average Model**](#)

11:30 Bingyong Guo (University of Hull, UK)

Ron Patton (University of Hull, UK)

Mustafa Abdelrahman (University of Hull, UK)

Jianglin Lan (University of Hull, UK)

[**ID96-A Continuous Control Approach to Point Absorber Wave Energy Conversion**](#)

11:50 Adrian O Sullivan (University College Cork, Ireland)

Gordon Lightbody (University College Cork, Ireland)

ID38-Predictive control of a wave to wire energy conversion system - the importance of field weakening

12:10 Xiaoxing Fu (University of Leicester, UK)
Andrea Lecchini Visintini (University of Leicester, UK)

ID85-Optimisation of restricted complexity control for wave energy conversion

Wednesday

10:30-12:30 Session 4B Conference Room 2

InstMC and IChemE Mini Symposium

Chairs: Keith Burnham (University of Wolverhampton, UK)
Ogi Marjanovic (The University of Warwick, UK)

Wednesday

13:30-15:30 Session 5A Conference Room 1

Autonomous Systems and Robotics

Chairs: Desineni Naidu (Univ. of Minnesota, USA)
James Whidborne (Cranfield University, UK)

13:30 Isonguyo Inyang (Cranfield University, UK)
James Whidborne (Cranfield University, UK)
Martin Bayliss (Schlumberger Oilfield UK Plc, UK)

ID42-Bilinear Modelling and Bilinear PI Control of Directional Drilling

13:50 Xiaoming Liu (School of Astronautics, Beihang University, China)
Zhongyuan Chen (School of Astronautics, Beihang University, China)
Wanchun Chen (School of Astronautics, Beihang University, China)
Xiaolan Xing (System Analysis Institute, Air Force Armament Research Academy, China)

ID5-Multiple Optical Flow Sensors Aiding Inertial Systems for UAV Navigation

14:10 Ahmed Khamis (Idaho State University, USA)
Cheng-Hung Chen (Technische Universitat Munchen, Germany)
Desineni Naidu (University of Minnesota Duluth, USA)

ID76-Tracking of a Robotic Hand via SD-DRE and SD-DVE Strategies

14:30 Lv Xu (Nanjing University of Science and Technology, China)
Zhengrong Xiang (Nanjing University of Science and Technology, China)

ID12-Consensus of Heterogeneous Multi-agent Systems with Delayed and Intermittent Communications

14:50 Hassrizal Bin Hassan Basri (The University of Sheffield, UK)
John Anthony Rossiter (The University of Sheffield, UK)

ID13-A Survey of Control Strategies for Spacecraft Attitude and Orientation

15:10 Maradona Rodrigues (WMG, The University of Warwick, UK)
Andrew McGordon (WMG, The University of Warwick, UK)
Graham Gest (Tata Motors European Technical Centre Plc, UK)
James Marco (WMG, The University of Warwick, UK)

ID69-Adaptive Tactical Behaviour Planner for Autonomous Ground Vehicle

Wednesday**13:30-15:30 Session 5B Conference Room 2****Control System Design Methods (I)**

Chairs: Eric Rogers (University of Southampton, UK)

John Rossiter (The University of Sheffield, UK)

13:30 Shukri Dughman (The University of Sheffield, UK)

Anthony Rossiter (The University of Sheffield, UK)

[**ID25-Efficient Robust Feed Forward Model Predictive Control with Tracking**](#)

13:50 Muhammad Bin Abdullah (University of Sheffield, UK)

John Anthony Rossiter (University of Sheffield, UK)

[**ID8-Utilising Laguerre Function in Predictive Functional Control to Ensure Prediction Consistency**](#)

14:10 Hidetoshi Oya (Tokyo City University, Japan)

[**ID11-A New Variable Gain Robust State Observer for a Class of Uncertain Linear Systems**](#)

14:30 Eric Rogers (University of Southampton, UK)

Wojciech Paszke (University of Zielona Gora, Poland)

Marcin Boski (University of Zielona Gora, Poland)

[**ID15-Robust output feedback control of uncertain discrete linear repetitive processes over finite frequency ranges**](#)

14:50 Emmanuel Edet (University of Strathclyde, UK)

Reza Katebi (University of Strathclyde, UK)

[**ID21-Design and Tuning of Fractional-order PID Controllers for Time-delayed Processes**](#)

15:10 Yahya Al-Naumani (The University of Sheffield, UK)

J Anthony Rossiter (The University of Sheffield, UK)

[**ID23-Gas Phase Train in Upstream Oil & Gas Fields: PART-II Disturbances Impact Study**](#)**Wednesday****13:30-15:30 Session 5C Lecture Room 3****Modelling and Simulation Tools for Control**

Chairs: Bryn Jones (University of Sheffield, UK)

Richard Mitchell (University of Reading, UK)

13:30 Oliver Dellar (The University of Sheffield, UK)

Bryn Jones (The University of Sheffield, UK)

[**ID72-Discretising the Linearised Navier-Stokes Equations: A Systems Theory Approach**](#)

13:50 Bruce Postlethwaite (University of Strathclyde, UK)

[**ID17-The development of PISim**](#)

14:10 Peter Heins (The University of Sheffield, UK)

Bryn Jones (The University of Sheffield, UK)

[ID9-SWEM: A Multiphysics Sea-Surface Simulation Environment](#)

14:30 Charlotte Currie (NATS, UK)

Andres Marcos (University of Bristol, UK)

Oliver Turnbull (University of Bristol, UK)

[ID33-Wind Optimal Flight Trajectories to Minimise Fuel Consumption within a 3 Dimensional Flight Network](#)

14:50 Theopisti Zaza (University of Bristol, UK)

Arthur Richards (University of Bristol, UK)

[ID84-Intelligent Foresight for UAV Routing Problems](#)

15:10 Richard Mitchell (University of Reading, UK)

[ID35-Introducing Control in an Open Online Course](#)

Wednesday

15:50-17:50 Session 6A Conference Room 1

Networked Control Systems and Applications

Chairs: Ron Patton (University of Hull, UK)

Liang Hu (Queen's University Belfast, UK)

15:50 Zain Ul Aabidin Lodhi (National University of Sciences and Technology, Pakistan)

Attaullah Y. Memon (National University of Sciences and Technology, Pakistan)

[ID136-Output Regulation of A Class of Multi-Agent Systems Using Conditional Servocompensators](#)

16:10 Liang Hu (Queen's University Belfast, UK)

Zidong Wang (Brunel University London, UK)

Wasif Naeem (Queen's University Belfast, UK)

[ID108-Security Analysis of Stochastic Networked Control Systems under False Data Injection Attacks](#)

16:30 Jianglin Lan (University of Hull, UK)

Ron Patton (University of Hull, UK)

[ID47-Decentralized fault estimation and fault-tolerant control for large-scale interconnected systems: an integrated design approach](#)

16:50 Pablo Baldivieso Monasterios (The University of Sheffield, UK)

Paul Trodden (The University of Sheffield, UK)

[ID86-Output Feedback Quasi-Distributed MPC for Linear Systems Coupled via Dynamics and Constraints](#)

17:10 Mercedes Chacon Vasquez (University of Strathclyde, UK)

Reza Katebi (University of Strathclyde, UK)

[ID14-Comparison of PID methods for Networked Control Systems](#)

Wednesday**15:50-17:50 Session 6B Lecture Room 3****Fault Detection and Condition Monitoring**

Chairs: Mingcong Deng (Tokyo University of Agriculture and Technology, Japan)

David Henry (University Bordeaux 1, France)

- 15:50 Nicolas Ellero (University Bordeaux 1, France)
David Gucik-Derigny (University Bordeaux 1, France)
David Henry (University Bordeaux 1, France)

[ID55-Unknown input interval observer for uncertain Linear Time Invariant systems](#)

- 16:10 Shuang Liang (Beihang University, China)
Jinsong Yu (Beihang University, China)
Diyin Tang (Beihang University, China)
Hao Liu (Beihang University, China)

[ID50-A Bayesian nonparametric approach for tool condition monitoring](#)

- 16:30 Shotaro Kawahata (Tokyo University of Agriculture and Technology, Japan)
Mingcong Deng (Tokyo University of Agriculture and Technology, Japan)
Shin Wakitani (Tokyo University of Agriculture and Technology, Japan)

[ID31-Operator theory based nonlinear fault tolerance control for MIMO microreactor](#)

- 16:50 Wathiq Abed (Plymouth University, UK)
Riccardo Polvara (Plymouth University, UK)
Yogang Singh (Plymouth University, UK)
Sanjay Sharma (Plymouth University, UK)
Robert Sutton (Plymouth University, UK)
Daniel Hatton (Plymouth University, UK)
Andrew Manning (Plymouth University, UK)
Jian Wan (Plymouth University, UK)

[ID29-Advanced Feature Extraction and Dimensionality Reduction for Unmanned Underwater Vehicle Fault Diagnosis](#)

- 17:10 Xiaogang Deng (China University of Petroleum, China)
Xuemin Tian (China University of Petroleum, China)
Sheng Chen (University of Southampton, UK)
Chris J. Harris (University of Southampton, UK)

[ID19-Statistics Local Fisher Discriminant Analysis for Industrial Process Fault Classification](#)

Wednesday**15:50-17:50 Session 6C Lecture Room 2****Industrial Process Applications of Control**

Chairs: Sarah K. Spurgeon (University of Kent, UK)

Shinji Wakui (Tokyo University of Agriculture and Technology, Japan)

- 15:50 Keisuke Nakade (Tokyo University of Agriculture and Technology, Japan)
Shinji Wakui (Tokyo University of Agriculture and Technology, Japan)
[ID27-Pitching vibration suppression of the galvano mirror considering coupling rigidity](#)
- 16:10 Qiankun Ma (Shanghai Jiao Tong University, China)
Xuyong Wang (Shanghai Jiao Tong University, China)
Fan Yuan (Shanghai Jiao Tong University, China)
Jianfeng Tao (Shanghai Jiao Tong University, China)
Peng Liu (Shanghai Jiao Tong University, China)
[ID120-Research on feed-forward PID2 Control for Hydraulic Continuous Rotation Motor Electro-hydraulic Servo System with Long Pipeline](#)
- 16:30 Ajaree Suwatthikul (Chulalongkorn University, Thailand)
Nattaya Laisua (Chulalongkorn University, Thailand)
Paisan Kittisupakorn (Chulalongkorn University, Thailand)
[ID58-Improvement of Palladium Ions Recovery via Hollow Fiber Supported Liquid Membrane with Model Predictive Control](#)
- 16:50 Shuzhan Zhang (China University of Petroleum, China)
Dongya Zhao (China University of Petroleum, China)
Sarah K. Spurgeon (University of Kent, UK)
Xinggang Yan (University of Kent, UK)
[ID121-Distributed Model Predictive Control for the Atmospheric and Vacuum Distillation Towers in a Petroleum Refining Process](#)
- 17:10 Feriel Kochtbene (Arts et Métiers Paris Tech, France)
George Moraru (Arts et Métiers Paris Tech, France)
[ID161-Active control of a vibrating beam in Milling](#)
- 17:30 Qiang Chen (Zhejiang University of Technology, China)
Liang Tao (Zhejiang University of Technology, China)
Fang Dong (Zhejiang University of Technology, China)
Yurong Nan (Zhejiang University of Technology, China)
[ID64-Universal control for a class of nonlinear systems based on finite-time parametric estimation](#)

Wednesday

15:50-17:50 Session 6D Conference Room 2

SS2: Advanced Modeling, Optimization and Control for Energy and Power Generation/Transmission Systems

Chairs: Guido Herrmann (University of Bristol, UK)

Jing Na (University of Bristol, UK)

Q.M Zhu (University of the West of England, UK)

- 15:50 Vicenç Puig (UPC, Spain)
Ramon Costa (UPC, Spain)
José Luis Sampietro (UPC, Spain)
[ID125-Economic MPC for the Energy Management of Hybrid Vehicles including Fuel Cells and Supercapacitors](#)

- 16:10 Francesco Paparella (COER, Maynooth University, Ireland)
John V. Ringwood (COER, Maynooth University, Ireland)
[ID36-Enhancement of the wave energy conversion characteristics of a hinge barge using pseudospectral control](#)
- 16:30 Jing Na (University of Bristol, UK)
Guido Herrmann (University of Bristol, UK)
Clement Rames (University of Bristol, UK)
Richard Burke (University of Bath, UK)
Chris Brace (University of Bath, UK)
[ID87-Air-Fuel-Ratio Control of Engine System with Unknown Input Observer](#)
- 16:50 Q.M Zhu (University of the West of England, UK)
Na Jing (University of Bristol, UK)
S. Ghauri (University of the West of England, UK)
[ID53-U-model based Control System Formulation and Design for Wind Energy Conversion Systems](#)
- 17:10 Jianhua Zhang (North China Electric Power University, China)
Ting Zhang (North China Electric Power University, China)
Mingming Lin (North China Electric Power University, China)
Guolian Hou (North China Electric Power University, China)
Kang Li (Queen's University Belfast, UK)
[ID170-Multiple Model Predictive Control for Organic Rankine Cycle \(ORC\) based Waste Heat Energy Conversion Systems](#)
- 17:30 Siyuan Zhan (Queen Mary University of London, UK)
Henri Huijberts (Queen Mary University of London, UK)
Jing Na (Kunming University of Science and Technology, UK)
Guang Li (Queen Mary University of London, UK)
[ID145-Optimal controller design and constraints analysis of a sea wave energy converter](#)

Wednesday**18:00-19:00 Session 7****Conference Rooms 1 & 2****Panel discussion - challenges and opportunities in control engineering**

Chair: Eric Kerrigan (Imperial College London, UK)

Thursday, 1st September

Thursday

09:00-10:00 Session 8 Conference Rooms 1 & 2

Keynote speech 2: Optimising the Performance of Wave Energy Systems

Chair: Sean McLoone (Queen's University Belfast, Ireland)

Speaker: John Ringwood (Maynooth University, Ireland)

Thursday

10:30-12:30 Session 9A Conference Room 1

IET Mini Symposium: Applications of Biomedical Modelling and Control

Chair: James Taylor (Lancaster University, UK)

Thursday

10:30-12:30 Session 9B Conference Room 2

Industry 4.0 Mini Symposium: Putting Theory Into Practice

Chair: Micheal Cassidy (Irish Manufacturing Research, Ireland)

Thursday

13:30-15:30 Session 10A Conference Room 2

SS3: Applications of MATLAB and Simulink with hardware

Chairs: Coorous Mohtadi (The MathWorks Ltd, UK)

Owen Mcaree (University of Sheffield, UK)

13:30 Owen Mcaree (University of Sheffield, UK)

Jonathan Aitken (University of Sheffield, UK)

Sandor Veres (University of Sheffield, UK)

[**ID138-A model based design framework for safety verification of a semi-autonomous inspection drone**](#)

13:50 Kameswarie Nunna (The MathWorks Ltd, UK)

Nicolas Gautier (The MathWorks Ltd, UK)

Sebastian Malack (The MathWorks Ltd, Germany)

Mischa Kim (The MathWorks Ltd, Germany)

[**ID81-Model-Based Design for rapid controller prototyping of Furuta pendulum: a case study using low-cost hardware**](#)

14:10 Jonathan M. Aitken (University of Sheffield, UK)

Owen Mcaree (University of Sheffield, UK)

Sandor Veres (University of Sheffield, UK)

[**ID105-Symbiotic relationship between robots - a ROS ARDrone/YouBot library**](#)

14:30 Minhee Kwon (Kookmin University, Korea)

H.J. Chang (Kookmin University, Korea)

ID122-Extended Root-Locus Technique Applied to Pole-Placement for PI Controller Design

14:50 Mohammed Alkhafaji (Cranfield University, UK)
Patrick Luk (Cranfield University, UK)
Akram Bati (Surrey University, UK)

ID4-Integration of electric vehicle within micro grid

Thursday

13:30-15:30 Session 10B

Lecture Room 3

Renewable Energy, Smart Grid and Environmental Systems

Chairs: Paul Trodden (The University of Sheffield, UK)

Hong Yue (University of Strathclyde, UK)

13:50 Farooq Alam (National University of Sciences and Technology (NUST), Pakistan)
Sajjad Zaidi (National University of Sciences and Technology (NUST), Pakistan)
Attaullah Memon (National University of Sciences and Technology (NUST), Pakistan)
Muhammad Ashfaq (National University of Sciences and Technology (NUST), Pakistan)

ID133-Robust Droop Control Design For a Hybrid AC/DC Microgrid

14:10 Sung-Ho Hur (University of Strathclyde, UK)
Bill Leithead (University of Strathclyde, UK)

ID129-Model Predictive Control of a Variable-Speed Pitch-Regulated Wind Turbine

14:30 Eyefujirin Ejegi (University of Sheffield, UK)
John Rossiter (Sheffield, UK)
Paul Trodden (University of Sheffield, UK)

ID88-Distributed model predictive load frequency control of a deregulated power system

14:50 Xiyun Yang (North China Electric Power University, China)
Hong Yue (University of Strathclyde, UK)
Jie Ren (North China Electric Power University, China)

ID92-Photovoltaic Power Forecasting with a Rough Set Combination Method

15:10 Xiaoqing Chen (University of Oxford, UK)
Stephen Duncan (University of Oxford, UK)

ID94-Automatic Detection of Tap Changes on an Electricity Grid

16:50 Zi Zhu (Harbin Institute of Technology, China)
Xuefeng Bai (Harbin Institute of Technology, China)
Ying Xu (Harbin Institute of Technology, China)
Wei Zhang (Harbin Institute of Technology, China)
Ruiye Liu (Harbin Institute of Technology, China)

ID104-Identifying Equivalent Load model of Power Systems With Wind Power Integration

Thursday

13:30-15:30 Session 10C Lecture Room 2

System Identification and Big Data

Chairs: Manuel De La Sen (University of Basque Country, Spain)

Gordon Lightbody (University College Cork, Ireland)

13:30 Chen Rongbao (Hefei University of Technology, China)

Ma Wuyong (Hefei University of Technology, China)

Xiao Benxian (Hefei University of Technology, China)

Cao Zipei (Hefei University of Technology, China)

[ID101-Research on the Rough Set Attribute Reduction Algorithm Based on Significance of Attributes](#)

13:50 Lan Cheng (Taiyuan University of Technology, China)

Mifeng Ren (Taiyuan University of Technology, China)

Gang Xie (Taiyuan University of Technology, China)

Jie Chen (Beijin Institute of Technology, China)

[ID61-Multipath Estimation using Kernel Minimum Error Entropy Filter](#)

14:10 U Saralegi (UPV/EHU, Spain)

M. De La Sen (UPV/EHU, Spain)

S Alonso-Quesada (UPV/EHU, Spain)

[ID155-A Feedback Vaccination Law For An SIR Epidemic Model: A Case Study](#)

14:30 Edward O'Dwyer (University College Cork, Ireland)

Luciano De Tommasi (United Technologies Research Centre Ireland, Italy)

Kostas Kouramas (United Technologies Research Centre Ireland, Greece)

Marcin Cychowski (United Technologies Research Centre Ireland, Poland)

Gordon Lightbody (University College Cork, UK)

[ID75-Low-Order Building Model Identification in Presence of Unmeasured Disturbance for Predictive Control Strategies](#)

14:50 Philip Gillespie (Queen's University Belfast, UK)

Daniel Gaida (University of Applied Sciences, Gummersbach, Germany)

Peter Hung (National University of Ireland, Maynooth, Ireland)

Robert Kee (Queen's University Belfast, UK)

Sean McLoone (Queen's University Belfast, UK)

[ID146-Noise resilient discrete-time cross-relation sensor characterisation](#)

15:10 Junhong Li (Nantong University, China)

Juping Gu (Nantong University, China)

Yi Yang (Nantong University, China)

Xinsong Zhang (Nantong University, China)

[ID175-Hierarchical maximum likelihood iterative identification algorithm for Hammerstein Box-Jenkins systems](#)

Thursday

13:30-15:30 Session 10D Conference Room 1

Control System Design Methods (II)

Chairs: Hong Wang (University of Manchester, UK)

Jianhua Zhang (North China Electric Power University, China)

LOCATION: Conference Room 1

13:30 Rene Galindo Orozco (Autonomous University of Nuevo Leon, Mexico)

Roger Ngwompo (University of Bath, UK)

[**ID152-A Bond Graph Pseudo-Junction Structure for Non-Linear Non-conservative Systems**](#)

13:50 Yuyang Zhou (the university of manchester, UK)

Qichun Zhang (the university of manchester, UK)

Hong Wang (the university of manchester, UK)

[**ID119-Enhanced Performance Controller Design for Stochastic Systems by Adding Extra State Estimation onto the Existing Closed Loop Control**](#)

14:10 Runxian Yang (Nanjing University of Aeronautics and Astronautics, China)

Chenguang Yang (Swansea University, UK)

Mou Chen (Nanjing University of Aeronautics and Astronautics, China)

Jing Na (University of Bristol, UK)

[**ID52-RBFNN Based Adaptive Control of Uncertain Robot Manipulators in Discrete Time**](#)

14:30 Metehan Yayla (Middle East Technical University, Turkey)

Ali Turker Kutay (Middle East Technical University, Turkey)

[**ID142-Guaranteed Exponential Convergence without Persistent Excitation in Adaptive Control**](#)

14:50 Fan Yuan (Shanghai Jiao Tong University, China)

Xuyong Wang (Shanghai Jiao Tong University, China)

Qiankun Ma (Shanghai Jiao Tong University, China)

Zhonghua Miao (Shanghai University, China)

[**ID123-Friction Compensation Control of Cam-Rotor Vane Motor Based on Improved LuGre Model**](#)

15:10 Rodrigo Trentini Preuss (University of Applied Sciences and Arts Hannover, Germany)

Antonio Silveira (Federal University of Pará, Brazil)

Marvin Timo Bartsch (University of Applied Sciences and Arts Hannover, Germany)

Rüdiger Kutzner (University of Applied Sciences and Arts Hannover, Germany)

Lutz Hofmann (Leibniz Universität Hannover, Germany)

[**ID139-On the design of stochastic RST controllers based on the Generalized Minimum Variance**](#)

Thursday

15:50-17:30 Session 11A Conference Room 1

Control Applications in Transportation

Chairs: Paolo Lino (Politecnico di Bari, Italy)

C. James Taylor (Lancaster University, UK)

- 15:50 Ivana Tomic (City University London, UK)
George Halikias (City University London, UK)
[ID118-Performance analysis of distributed control configurations in LQR multi-agent system design](#)
- 16:10 Nan Li (Zhejiang University, China)
Guang Zhou Zhao (Zhejiang University, China)
[ID109-Adaptive signal control for urban traffic network gridlock](#)
- 16:30 Kieran Reeves (National Motorsport Academy, UK)
Allahyar Montazeri (Lancaster University, UK)
C. James Taylor (Lancaster University, UK)
[ID90-Model Development and Energy Management Control for Hybrid Electric Race Vehicles](#)
- 16:50 Mukarram Shaik (Cranfield University, UK)
James Whidborne (Cranfield University, UK)
[ID117-Robust Sliding Mode Control of a Quadrotor](#)
- 17:10 Paolo Lino (Politecnico di Bari, Italy)
Guido Maione (Politecnico di Bari, Italy)
Fabrizio Saponaro (Politecnico di Bari, Italy)
Jing Deng (Queen's University Belfast, UK)
Kang Li (Queen's University Belfast, UK)
[ID164-Identification of Solenoid Valve Dynamics in a Variable Valve Timing System](#)

Thursday

15:50-17:30 Session 11B Lecture Room 3

Algorithms and Architectures of Control Systems

Chairs: Paul Trodden (The University of Sheffield, UK)
James Whidborne (Cranfield University, UK)

- 15:50 James Whidborne (Cranfield University, UK)
[ID110-Solving Optimal Control Problems using Chebfun](#)
- 16:10 Jiayang Hu (University of Bath, UK)
Andrew Plummer (University of Bath, UK)
[ID71-Compensator Design for Model-in-the-Loop Testing](#)
- 16:30 Bernardo Hernandez (The University of Sheffield, UK)
Paul Trodden (The University of Sheffield, UK)
[ID45-Distributed Model Predictive Control Using a Chain of Tubes](#)
- 16:50 Kritchai Wittheephanch (Cork Institute of Technology, Ireland)
Luis Orihuela (Universidad Loyola Andalucia, Spain)
Ramon A. Garcia (Universidad de Sevilla, Spain)
Juan M. Escano (Cork Institute of Technology, Ireland)
[ID48-Min-max model predictive control with robust zonotope-based observer](#)
- 17:10 Jianhua Zhang (North China Electric Power University, China)
Yamin Kuai (North China Electric Power University, China)

Shuqing Zhou (North China Electric Power University, China)
Guolian Hou (North China Electric Power University, China)
Mifeng Ren (Taiyuan University of Technology, China)

[ID169-Improved minimum entropy control for two input and two-output networked control systems](#)

Thursday

15:50-17:30 Session 11C Conference Room 2

SS4: Virtual Reality and Robotics

Chairs: Wasif Naeem (Queen's University, UK)

Karen Rafferty (Queen's University Belfast, UK)

15:50 Rameez Hayat (Student at TU Munich, Germany)
Martin Buss (Technical University of Munich, Germany)

[ID130-Model Identification for Robot Manipulators using Regressor-Free Adaptive Control](#)

16:10 Siavash Ahmadi Barogh (Institute of Control Systems, TUHH, Germany)
Herbert Werner (Institute of Control Systems, TUHH, Germany)

[ID62-Cascaded Formation Control Using Angle and Distance Between Agents with Orientation Control \(Part 1\)](#)

16:30 Siavash Ahmadi Barogh (Institute of Control Systems, TUHH, Germany)
Herbert Werner (Institute of Control Systems, TUHH, Germany)

[ID116-Cascaded Formation Control Using Angle and Distance Between Agents with Orientation Control \(Part 2\)](#)

16:50 Ivana Tomic (City University London, UK)
Efsthathios Milonidis (City University London, UK)
George Halikias (City University, UK)

[ID128-LQR distributed cooperative control of a formation of low-speed experimental UAVs](#)

17:10 Yasuhiko Mutoh (Sophia Univ., Japan)
Masakatsu Kemmotsu (Sophia Univ., Japan)
Wataru Akutsu (Sophia Univ., Japan)

[ID74-Time Varying Observer Based Discrete Control for 2-Link Robot Manipulator](#)

Thursday

15:50-17:30 Session 11D Lecture Room 2

Nonlinear Control Systems Design

Chairs: Ziqiang Lang (Sheffield University, UK)

Dong Yue (Nanjing University of Posts and Telecommunications, China)

15:50 Yunpeng Zhu (Sheffield University, UK)
Ziqiang Lang (Sheffield University, UK)

[ID106-Analysis of Output Response of Nonlinear Systems using Nonlinear Output Frequency Response Functions](#)

16:10 Ross Drummond (Oxford University, UK)
Giorgio Valmorbida (CentraleSupélec, France)
Stephen Duncan (Oxford University, UK)

[ID82-Lyapunov Analysis of Nonlinear Systems With Rational Vector Field and Jacobian](#)

16:30 Xue Wu (Nanjing University of Aeronautics and Astronautics, China)
Shaojie Zhang (Nanjing University of Aeronautics and Astronautics, China)
Weifang Shuang (Nanjing University of Aeronautics and Astronautics, China)
Erik-Jan van Kampen (Delft University of Technology, Netherlands)
Qiping Chu (Delft University of Technology, Netherlands)

[ID65-Optimal adaptive compensation control for a class of MIMO nonlinear systems with actuator failures](#)

16:50 Yang Yang (Nanjing University of Posts and Telecommunications, China)
Dong Yue (Nanjing University of Posts and Telecommunications, China)
Zhou Gu (Nanjing Forestry University, China)

[ID40-Observer-Based Adaptive Fault-Tolerant Control of A Class of Nonlinear Systems With Actuator Failures](#)

Thursday

17:30-18:30 Session 12 Lecture Room 3

UKACC Committee meeting

Chair: Eric Kerrigan (Imperial College London, UK)

Thursday

19:30-21:30 The Great Hall at Belfast City Hall

Conference Banquet at Belfast City Hall

Friday, 2nd September

Friday

09:00-10:00 Session 13

Conference Rooms 1 & 2

Keynote speech 3: Target/Source Localization by a Network of Imperfect Binary Sensors

Speaker: Erwei Bai (University of Iowa, USA)

Chair: Sarah K. Spurgeon (University of Kent, UK)

Friday

10:00-11:00 Session 14

The Courtyard Catering Area

Poster session and refreshments

10:00 Hui-Hong Duan (University of Shanghai for Science and Technology, China)
Sheng-Dong Nie (University of Shanghai for Science and Technology, China)
Jing Gong (University of Shanghai for Science and Technology, China)

[**ID73-Two-pass region growing combined morphology algorithm for segmenting airway tree from CT chest scans**](#)

10:00 Lidong Zhang (Northeast Dianli University, China)
Kang Li (Queen's University Belfast, UK)
Zhile Yang (Queen's University Belfast, UK)
Zi Yang (Northeast Dianli University, China)
Qing Wang (Northeast Dianli University, China)

[**ID179-TRIZ Based Teaching Strategy for Wind Turbine Control**](#)

10:00 Scott Devine (Queen's University Belfast, UK)
Karen Rafferty (Queen's University Belfast, UK)
Stuart Ferguson (Queen's University Belfast, UK)

[**ID154-Real time robotic arm control using hand gestures with multiple end effectors**](#)

10:00 Thelfa Ahmad (Queen's University Belfast, UK)
Tim Littler (Queen's University Belfast, UK)
Wasif Naeem (Queen's University Belfast, UK)

[**ID150-Investigating the effect of PID controller on inertial response in doubly fed induction generator \(DFIG\)**](#)

10:00 David McIntyre (Queen's University, UK)
Wasif Naeem (Queen's University, UK)
Xiandong Xu (Queen's University, UK)

[**ID127-Cooperative Obstacle Avoidance using Bidirectional Artificial Potential Fields**](#)

10:00 Seamus Mcloone (Maynooth University, Ireland)
John Maloco (Maynooth University, Ireland)

[**ID32-A Cost-effective Hardware-based Laboratory Solution for Demonstrating PID Control**](#)

- 10:00 Furqan Alam (King Abdulaziz University, Saudi Arabia)
Vijey Thayanathan (King Abdulaziz University, Saudi Arabia)
Iyad Katib (King Abdulaziz University, Saudi Arabia)
[ID24-Analysis of Round-robin Load-balancing Algorithm with Adaptive and Predictive Approaches](#)
- 10:00 Jun Zhao (Harbin Institute of Technology, China)
Guo-Ping Liu (The University of Southwales, UK)
[ID132-A Novel NCS Simulation and Experimental Platform](#)
- 10:00 Wei Xie (Shanghai Key Laboratory of PowerStation Automation Technology
School of Mechatronics and Automation, China)
Xianxia Zhang (Shanghai Key Laboratory of PowerStation Automation
Technology, School of Mechatronics and Automation ,Shanghai University, China)
[ID41-An Improved Online Self-organizing Dynamic Fuzzy Neural Network for Nonlinear Dynamic System Identification](#)
- 10:00 [Mohammed Al-Saadi](#) (Cranfield University, UK)
[Patrick Luk](#) (Cranfield University, UK)
[Weizhong Fei](#) (Cranfield University, UK)
[ID178-Impact of Unit Commitment on the Optimal Operation of Hybrid Microgrids](#)
- 10:00 Franklyn Duarte (Institute of Electrical Information Technology, Clausthal
University of Technology, Germany)
Christian Bohn (Institute of Electrical Information Technology, Clausthal
University of Technology, Germany)
[ID80-Modeling and Centralized Sliding Mode Control of a Two-flexible-link Robot](#)

Friday

11:00-13:00 Session 15A Conference Room 1

Artificial Intelligence in Control

Chairs: Wen-Hua Chen (Loughborough University, UK)

Jianhua Zhang (North China Electric Power University, China)

- 11:00 Dazi Li (Beijing University of Chemical Technology, China)
Guifang Wang (Beijing University of Chemical Technology, China)
Tianheng Song (Beijing University of Chemical Technology, China)
Qibing Jin (Beijing University of Chemical Technology, China)
[ID57-Improving Convolutional Neural Network using Accelerated Proximal Gradient Method for Epilepsy Diagnosis](#)
- 11:20 Fanlin Meng (Loughborough University, UK)
Jinya Su (Loughborough University, UK)
Cunjia Liu (Loughborough University, UK)
Wen-Hua Chen (Loughborough University, UK)
[ID83-Dynamic Decision Making in Lane Change: Game Theory with Receding Horizon](#)

- 11:40 Teng D Chollom (University of leicester, UK)
Nkemdilim Ofodile (University of Leicester, UK)
Osichinaka Ubadike (Nigerian Air Force, Nigeria)
[ID135-Application Techniques of Multi-objective particle swarm optimization: Aircraft flight control](#)
- 12:00 Mifeng Ren (Taiyuan University of Technology, China)
Ting Cheng (Taiyuan University of Technology, China)
Lan Cheng (Taiyuan University of Technology, China)
Jianhua Zhang (North China Electric Power University, China)
Gaowei Yan (Taiyuan University of Technology, China)
[ID140-A Single Neuron Controller for Non-Gaussian Systems with Unmodeled Dynamics](#)
- 12:20 Quang An Phan (Cork Institute of Technology, Ireland)
Michael D. Murphy (Cork Institute of Technology, Ireland)
Michael C. Breen (Cork Institute of Technology, Ireland)
Ted Scully (Cork Institute of Technology, Ireland)
[ID144-One-day-ahead Cost Optimisation for a Multi-energy Source Bremuilding using a Genetic Algorithm](#)
- 12:40 Shaojun Gan (Chongqing University, China)
Shan Liang (Chongqing University, China)
Kang Li (Queen's University Belfast, UK)
Jing Deng (Queen's University Belfast, UK)
Tingli Cheng (Chongqing University, China)
[ID163-Ship Trajectory Prediction for Intelligent Traffic Management using Clustering and ANN](#)

Friday

11:00-13:00 Session 15B Lecture Room 3

Advanced Control and Informatics

Chairs: Minyou Chen (Chongqing University, China)
Donglian Qi (Zhejiang University, China)

- 11:00 Bryn Jones (University of Sheffield, UK)
Peter Heins (University of Sheffield, UK)
Iñaki Esnaola (University of Sheffield, UK)
[ID93-Sea-Surface Reconstruction for Surface Marine Vehicles: A Matrix Completion Approach](#)
- 11:20 Zhekang Dong (College of Electrical Engineering, Zhejiang University, China)
Donglian Qi (College of Electrical Engineering, Zhejiang University, China)
Li Luo (School of Electronic and Information Engineering, Southwest University, China)
Shukai Duan (School of Electronic and Information Engineering, Southwest University, China)
Xiaofang Hu (School of Computer and Information Science, Southwest University, China)

ID113-A Fuzzy-based Parametric Fault Diagnosis Approach for Multiple Memristor Circuits

11:40 Yang Liu (Harbin Institute of Technology, China)
Li Li (Harbin Institute of Technology, China)
Zhenxian Fu (Harbin Institute of Technology, China)
Jiubin Tan (Harbin Institute of Technology, China)
Kang Li (Queen's University Belfast, UK)

ID172-Automatic Mass Balancing of a Spacecraft Simulator Based on Non-orthogonal Structure

12:00 Zhenxian Fu (Harbin institute of technology, China)
Guangying Zhang (Harbin institute of technology, China)
Yurong Lin (Harbin institute of technology, China)
Yang Liu (Harbin institute of technology, China)
Jiubin Tan (Harbin institute of technology, China)

ID173-Calibration and compensation of inertial sensor errors in portable applications - a review

12:20 Yue Dong (Harbin Institute of Technology, China)
Yang Liu (Harbin Institute of Technology, China)
Fazhi Song (Harbin Institute of Technology, China)
Li Li (Harbin Institute of Technology, China)
Kang Li (Queen's University Belfast, UK)

ID171-Modeling and Sliding-mode Control of Wafer Stage in Lithrography Machines

12:40 Weifang Ling (Chongqing University, China)
Minyou Chen (Chongqing University, China)
Zuolin Wei (Chongqing University, China)
Feixiong Chen (Chongqing University, China)
Lei Yu (China Southern Power Grid Research Institute, China)
David C Yu (University of Wisconsin-Milwaukee, USA)

ID162-A Distributed Optimal Control Method for Active Distribution Network

Friday

11:00-13:00 Session 15C Conference Room 2

SS5: Recent Advances in Spacecraft Modelling and Control

Chairs: Chuanjiang Li (Harbin Institute of Technology, China)
Yanning Guo (Harbin Institute of Technology, China)

11:00 Mohammed Al-Saadi (Cranfield university, UK)
Patrick Luk (Cranfield University, UK)
Fei Weizhong (Cranfield, UK)
Akram Bati (Surrey University, UK)

ID148-Security Constrained Active and Reactive Optimal Power Management of Microgrid in Different Market Policies

11:00 Baichun Gong (Northwestern Polytechnical University, China)
Jianjun Luo (Northwestern Polytechnical University, China)
Chuanjiang Li (Harbin Institute of Technology, China)

ID115-Initial Relative Orbit Determination For Close-in Proximity Operations Based on Tshcauner-Hempel Dynamics

11:20 Han Gao (Harbin Institute of Technology, China)
Yueyong Lv (Harbin Institute of Technology, China)
Guangfu Ma (Harbin Institute of Technology, China)
Chuanjiang Li (Harbin Institute of Technology, China)

ID126-Backstepping sliding mode control for combined spacecraft with nonlinear disturbance observer

11:40 Li Yuan (Harbin Institute of Technology, China)
Chuanjiang Li (Harbin Institute of Technology, China)
Boyan Jiang (Harbin Institute of Technology, China)
Guangfu Ma (Harbin Institute of Technology, China)

ID97-Fixed-Time Spacecraft Attitude Stabilization using Homogeneous Method

12:00 Mohammed Arezki Si Mohammed (Centre de Développement des Satellites (CDS), Algeria)
Abdellatif Bellar (Centre de Développement des Satellites (CDS), Algeria)
Akram Adnane (Centre de Développement des Satellites (CDS), Algeria)
Halima Boussadia (Université des Sciences et de la Technologie d'Oran Mohamed Boudiaf (USTO.MB), Algeria)

ID99-Performance Analysis of Attitude Determination and Estimation Algorithms Applied to Low Earth Orbit Satellites

12:20 Yanning Guo (Harbin Institute of Technology, China)
Yao Zhang (Harbin Institute of Technology, China)
Guangfu Ma (Harbin Institute of Technology, China)
Tianyi Zeng (Beijing Institute of Technology, China)

ID124-Multi-power Sliding Mode Guidance for Mars Powered Descent Phase

The 2016 UKACC International Conference on Control (UKACC Control 2016)

Belfast, UK, 31 August - 2 September 2016

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Liu,Cunjia	Fri	15A	Montazeri,Allahyar	Thur	11A
Liu,Guo-Ping	Fri	14	Moraru,George	Wed	6C
Liu,Hao	Wed	6B	Mu,Yunfei	Mon	WS-2B
Liu,Li	Mon	WS-2C	Murphy,Michael	Fri	15A
Liu,Kailong	Mon	WS-1A	Mutoh,Yasuhiko	Thur	11C
Liu,Mandan	Wed	6A	Na,Jing	Wed	6D
Liu,Peng	Mon	WS-1A	Na,Jing	Wed	6D
Liu,Peng	Wed	6C	Na,Jing	Thur	10D
Liu,Ruiye	Mon	WS-1B	Na,Tuopu	Mon	WS-1B
Liu,Ruiye	Wed	10B	Naeem,Wasif	Mon	WS-2C
Liu,Xiaoming	Wed	5A	Naeem,Wasif	Fri	14
Liu,Yang	Fri	14	Naeem,Wasif	Fri	14
Liu,Yang	Mon	WS-1C	Naeem,Wasif	Wed	6A
Liu,Yang	Fri	15B	Naidu,Desineni	Wed	5A
Liu,Yang	Fri	15B	Nakade,Keisuke	Wed	6C
Liu,Yang	Fri	15B	Nan,Yurong	Wed	6C
Liu,Yuquan	Mon	WS-2C	Nazir,Saqib	Fri	14
Liu,Zhong	Thur	11D	Ngwompo,Roger	Thur	10D
Lodhi,Zain	Wed	6A	Nie,Sheng-Dong	Fri	14
Luk,Patrick	Thur	10A	Nunna,Kameswarie	Thur	10A
Luk,Patrick	Mon	14	O'Dwyer,Edward	Thur	10C
Luk,Patrick	Fri	15C	Ofodile,Nkemdilim	Fri	15A
Luo,Jianjun	Fri	15C	Orihuela,Luis	Thur	11B
Luo,Li	Fri	15B	Orozco,Rene	Thur	10D
Lv,Yueyong	Fri	15C	Oya,Hidetoshi	Wed	5B



Paparella, Francesco	Wed	6D	Sullivan, Adrian	Wed	4A
Paszke, Wojciech	Wed	5B	Sun, Hongtao	Mon	WS-2A
Patton, Ron	Wed	4A	Sutton, Robert	Wed	6B
Patton, Ron	Wed	6A	Suwatthikul, Ajaree	Wed	6C
Peng, Chen	Mon	WS-2A	Tan, Jiubin	Fri	15B
Peng, Chen	Mon	WS-2A	Tan, Jiubin	Fri	15B
Phan, Quang	Fri	15A	Tang, Diyin	Wed	6B
Plummer, Andrew	Thur	11B	Tang, Yaohua	Mon	WS-1A
Plummer, Andrew	Wed	4A	Tao, Jianfeng	Wed	6C
Polvara, Riccardo	Wed	6B	Tao, Liang	Wed	6C
Postlethwaite, Bruce	Wed	5C	Taylor, C.	Thur	11A
Preuss, Rodrigo	Thur	10D	Thayananthan, Vijey	Fri	14
Puig, Vicenç	Thur	6D	Tian, Aina	Mon	WS-1A
Qi, Bo	Mon	WS-2A	Tian, Xuemin	Wed	6B
Qi, Donglian	Fri	15B	Tomic, Ivana	Thur	11A
Qu, Yanbin	Mon	WS-1C	Tomic, Ivana	Thur	11C
Rafferty, Karen	Fri	14	Tommasi, Luciano	Thur	10C
Rames, Clement	Wed	6D	Trodden, Paul	Wed	6A
Reeves, Kieran	Thur	11A	Trodden, Paul	Thur	10B
Ren, Jie	Thur	10B	Trodden, Paul	Thur	11B
Ren, Mifeng	Thur	10C	Tu, Xiaowei	Mon	WS-2C
Ren, Mifeng	Thur	11B	Turnbull, Oliver	Wed	5C
Ren, Mifeng	Fri	15A	Ubadike, Osichinaka	Fri	15A
Richards, Arthur	Wed	5C	Valmorbida, Giorgio	Thur	11D
Ringwood, John	Wed	4A	Vasquez, Mercedes	Wed	6A
Ringwood, John	Wed	6D	Veres, Sandor	Thur	10A
Ringwood, John	Thur	8	Veres, Sandor	Thur	10A
Rodrigues, Maradona	Wed	5A	Visintini, Andrea	Wed	4A
Rogers, Eric	Wed	5B	Wakitani, Shin	Wed	6B
Rongbao, Chen	Thur	10C	Wakui, Shinji	Wed	6C
Rossiter, John	Thur	10B	Wan, Jian	Wed	6B
Rossiter, John	Wed	5A	Wang, Dan	Mon	WS-2B
Rossiter, Anthony	Wed	5B	Wang, Guifang	Fri	15A
Rossiter, John	Wed	5B	Wang, Hong	Thur	10D
Rossiter, John	Wed	5B	Wang, Qing	Fri	14
Sampietro, José	Thur	6D	Wang, Xuyong	Thur	10D
Saponaro, Fabrizio	Thur	11A	Wang, Xinyu	Mon	WS-1C
Saralegi, U	Thur	10C	Wang, Xuyong	Wed	6C
Scully, Ted	Fri	15A	Wang, Yan	Mon	WS-2B
Sell, Nathan	Wed	4A	Wang, Yong	Mon	WS-2C
Sen, Manuel	Thur	10C	Wang, Zidong	Wed	6A
Shaik, Mukarram	Thur	11A	Wei, Zuolin	Fri	15B
Sharma, Sanjay	Wed	6B	Werner, Herbert	Thur	11C
Shi, Jianmai	Thur	11D	Werner, Herbert	Thur	11C
Shuang, Weifang	Thur	11D	Whidborne, James	Thur	11A
Silveira, Antonio	Thur	10D	Whidborne, James	Thur	11B
Singh, Yogang	Wed	6B	Whidborne, James	Wed	5A
Song, Fazhi	Fri	15B	Withephanich, Kritchai	Thur	11B
Song, Huihui	Mon	WS-1C	Wu, Jianguo	Mon	WS-2A
Song, Tianheng	Fri	15A	Wu, Jianguo	Mon	WS-2B
Song, Wen	Mon	WS-2A	Wu, Liqin	Mon	WS-2A
Song, Yang	Mon	WS-2A	Wu, Xue	Thur	11D
Spurgeon, Sarah	Wed	6C	Wuyong, Ma	Thur	10C
Su, Jinya	Fri	15A	Xiang, Zhengrong	Wed	5A



Xie, Conghua	Mon	WS-2A	Zhan, Siyuan	Wed	6D
Xie, Gang	Thur	10C	Zhan, Guohua	Mon	WS-2A
Xie, Wei	Fri	14	Zhang, Guangying	Fri	15B
Xing, Xiaolan	Wed	5A	Zhang, Hao	Mon	WS-2A
Xiong, Nan	Mon	WS-2C	Zhang, Jiaming	Thur	11D
Xu, Lv	Wed	5A	Zhang, Jianhua	Thur	11B
Xu, Qiwei	Mon	WS-1A	Zhang, Jianhua	Fri	15A
Xu, Sheng	Mon	WS-2A	Zhang, Jianhua	Wed	6D
Xu, Sheng	Mon	WS-2B	Zhang, Jin	Mon	WS-2A
Xu, Xiandong	Mon	WS-1C	Zhang, Kaixuan	Mon	WS-1B
Xu, Xiandong	Mon	WS-2C	Zhang, Kun	Mon	WS-2A
Xu, Xiandong	Fri	14	Zhang, Kun	Mon	WS-2B
Xu, Ying	Wed	10B	Zhang, Lidong	Fri	14
Yan, Gaowei	Fri	15A	Zhang, Lidong	Mon	WS-1C
Yan, Huaicheng	Mon	WS-2A	Zhang, Peijian	Mon	WS-2A
Yan, Juan	Mon	WS-2C	Zhang, Xianxia	Fri	14
Yan, Juan	Fri	14	Zhang, Xinsong	Thur	10C
Yan, Juan	Mon	WS-2C	Zhang, Qichun	Thur	10D
Yan, Xinggang	Wed	6C	Zhang, Qianfan	Mon	WS-1B
Yang, Aolei	Mon	WS-2C	Zhang, Qi	Mon	WS-1C
Yang, Xiaowei	Mon	WS-2A	Zhang, Shaojie	Thur	11D
Yang, Xiyun	Thur	10B	Zhang, Shuzhan	Wed	6C
Yang, Yi	Thur	10C	Zhang, Ting	Wed	6D
Yang, Runxian	Thur	10D	Zhang, Wei	Wed	10B
Yang, Taicheng	Mon	WS-2A	Zhang, Yao	Fri	15C
Yang, Yang	Thur	11D	Zhang, Yijie	Mon	WS-2A
Yang, Zhile	Mon	WS-1C	Zhang, Ying	Mon	WS-2B
Yang, Zhile	Mon	WS-2B	Zhao, Dongya	Wed	6C
Yang, Zi	Fri	14	Zhao, Jun	Fri	14
Yayla, Metehan	Thur	10D	Zhao, Guang	Thur	11A
You, Pengcheng	Mon	WS-2B	Zhao, Li	Mon	WS-2B
Yu, Lei	Fri	15B	Zhao, Tianxu	Mon	WS-1B
Yu, David	Fri	15B	Zhao, Xiaodong	Mon	WS-2C
Yu, Jilai	Mon	WS-1A	Zheng, Min	Mon	WS-2A
Yu, Jilai	Mon	WS-1A	Zheng, Min	Mon	WS-2A
Yu, Jinsong	Wed	6B	Zhou, Chaowei	Mon	WS-1B
Yuan, Fan	Thur	10D	Zhou, Bowen	Mon	WS-1C
Yuan, Li	Fri	15C	Zhou, Shuqing	Thur	11B
Yuan, Fan	Wed	6C	Zhou, Yuyang	Thur	10D
Yue, Hong	Thur	10B	Zhu, Mingliang	Fri	14
Yue, Dong	Thur	11D	Zhu, Mingliang	Mon	WS-2C
Zaidi, Sajjad	Thur	10B	Zhu, Q.M	Wed	6D
Zaza, Theopisti	Wed	5C	Zhu, Yunpeng	Thur	11D
Zeng, Tianyi	Fri	15C	Zhu, Zi	Wed	10B

