

# INTER-ACADEMY INTERNATIONAL WORKSHOP ON *'FUTURE COMMUNICATIONS AND 6G'*

# TECHNOLOGY AND INNOVATION CENTRE UNIVERSITY OF STRATHCLYDE GLASGOW, SCOTLAND

# MONDAY 24 - TUESDAY 25 JUNE, 2024

## **ORGANISERS:**

# **PROFESSOR TARIQ DURRANI (CHAIR)**

## **DR MALLIK TATIPAMULA (VICE CHAIR)**

Future development of Wireless Communication Systems is materially bound to the success and growth of modern economies. To track current trends and address emerging directions, a Workshop is proposed that will bring together decision makers, thought leaders, keynote academics, and influential industrialists, who will debate and discuss critical issues, address present day concerns, propose effective solutions and explore international collaboration.

A key element will be the pull through from fundamental research and development to demonstrative economic impact. The Workshop will be accompanied by an Exhibition, giving SMEs an opportunity to interact with international players.

The event is organised in partnership with the following Academies, representing engineering at their respective countries' highest levels; with the aim of discussing global telecommunications for next generation communication.

US National Academy of Engineering Royal Academy of Engineering Canadian Academy of Engineering Royal Swedish Academy of Engineering Sciences Royal Society of Edinburgh Indian National Academy of Engineering National Academy of Engineering of Korea IEEE Future Network

# DAY I MONDAY 24 JUNE 2024

#### 09:00-!0:00 REGISTRATION

10:00-10:05 OPENING COMMENTS TARIQ S DURRANI (University of Strathclyde) MALLIK TATIPAMULA (Ericsson)

#### 10.05-10.10 WELCOME SIR JIM MCDONALD President, Royal Academy of Engineering, and Principal, University of Strathclyde

#### 10:10-10:45 SESSION I WELCOME COMMENTS FROM ACADEMY PRESIDENTS (In person or by video)

Sir John Ball	President, Royal Society of Edinburgh
Dr John Anderson	President, US National Academy of Engineering
Dr Catherine Karakatsanis	President, Canadian Academy of Engineering
Professor Indranil Manna	President, Indian National Academy of Engineering
Mr Marcus Wallenbberg	President, Royal Swedish Academy of Engineering Sciences
Moderator: - Tarig S Durran	i (University of Strathclyde, UK)

### 10:45–11:45 SESSION 2 UK TELECOM ACTIVITIES AND STRATEGIES FOR 6G

To present current developments and future detractions of Communications in the UK

WELCOME TO SCOTLAND, OUR VISION FOR A DIGITAL FUTURE
 Geoff Huggins Director Digital Scotland Scottish Government (UK)

#### UK EPSRC Telecoms Hubs Speakers:

Harald Haas Director of Pla<u>f</u>form Dr<u>i</u>ving <u>The Ultimate Connectivity</u> (TITAN) - Network of Networks (University of Cambridge, UK)
 Dominic O'Brien Director of <u>Hub on All-Spectrum Connectivity</u> (HASC) (University of Oxford, UK)
 Muhammad Imran Director of <u>Communications Hub</u> for Empowering <u>Distributed Cloud</u> Computing <u>Applications and Research</u> (University of Glasgow, UK)
 Rahim Tafazolli Director Institute for Communications Systems (University of Surrey, Guildford, UK)
 Moderators: - Chris Johnson (Pro VC QUB and Chief Scientist Designate DSIT, UK) - Jacqueline Redmond (Chair CENSIS, UK)

### 11:45–13:00 SESSION 3 INTERNATIONAL 6G STRATEGIES AND USE CASES

Representatives will articulate their national strategies for communications and 6G developments.

- BHARAT 6G ALLIANCE'S VISION AND INITIATITIVES FOR TRANSFORATIVE 6G TEDCHNOLOLGIES IN INDIA Kiran KUCHI IIT Hyderabad (India)
- CANADA'S FUTURE NETWORKS VISION

Halim Yanikomeroglu Carleton U

Carleton University (Canada)

- US' NEXT 6G INITIATIVES
   Venki Ramaswamy
   Chief Technologist for Next G Mitre Corporation (USA)

   EUROPE 6G VISION INCLUDING THE POSITION OF THE EU FLAGSHIP PROJECT HEXA-X-I
   Magnus Frodigh
   Vice President and Head of Research, Ericsson (Sweden)

   5G EVOLUTION AND 6G
   Takehiro Nakamura
   Chief Standardization Officer, DoCoMo (Japan)

   IEEE 2030 TIMEFRAME
   Ashutosh Dutta
   Senior Scientist, 5G Chief Strategist EEE Future Networks, Johns Hopkins University (USA)
- Moderators: AI P Pisano (UC San Diego, USA) - Muriel Medard (MIT, Cambridge, USA)

### 13:00 -14:15 LUNCH and EXHIBITION

#### 14:15 -15:30 SESSON 4 INDUSTRY INFLUENCERS FORUM I

Presentations by senior industrialists addressing emerging opportunities, technologies for 6G development and vehicles for greater industry engagement and international collaboration between industry, academe and government agencies.

- Mallik Tatipamula CTO, Ericsson Silicon Valley (USA)
- Maria Cuevas
   Network Infrastructure Research Director BT (UK)
  - Junyi Li VP Engineering and Qualcomm Fellow, Qualcomm (USA)
- Jeff White CTO Edge, DELL Computers (USA)
- Victor Bahl
   CTO Azure Microsoft (USA)
- Moderators: Magnus Frodigh (Ericsson, Sweden) - Monisha Ghosh (University of Notre Dame, USA)

#### 15:30-16:00 REFRESHMENTS

#### 16:00 -17:15 SESSION 5 FUTURE POLICIES FRAMEWORK AND SPECTRUM REQUIREMENTS PANEL

Where thought leaders from participating countries will discuss policy issues, regulations and Spectrum requirements and opportunities for international collaboration.

- David Willis Group Director for Spectrum OFCOM (UK)
- Robert Stewart
   University of Strathclyde (UK)
- Monisha Ghosh
   University of Notre Dame (USA), Former CTO FCC
- Mark Waddell
   Lead R&D Engineer, BBC R&D (UK)
- David Lister 6G Research Lead Vodafone Group (UK)
- Ed Tiedemann Jr
   Senior VP Engineering and Qualcomm Fellow Qualcomm Technologies, Inc (USA)

Moderators: - Abhaya Sumanasena, (UK Spectrum Policy Forum (SPF), UK) - Ashutosh Dutta (Johns Hopkins University, USA)

### 17:15-18:30 EXHIBITORS' DRINKS RECEPTION 3rd Floor Foyer TIC Building

### 18:30–21:30 SPEAKERS' BANQUET (By invitation only)

#### Glasgow City Chambers

In the elegant Satinwood Suite of the City Chambers in the presence of Glasgow's Lord Provost Jacqueline McLaren. **Banquet Speaker: Martin Hendry** (University of Glasgow, UK)

# DAY 2 TUESDAY 25 JUNE 2024

Day 2 of the Workshop is divided into four sessions with keynote speakers from:

- Academia
- Roundtable discussion on Standards
- R&D funding sources
- Future directions and Next Steps.

#### 09:00-09:15 OPENING ADDRESS

#### • Mr Tom Arthur MSP, Minister for Employment and Investment. Scottish, Government (UK)

Moderator: - Tariq Durrani (University of Strathclyde, UK)

### 09:15-10:30 SESSION I ENGINEERING ACADEMIC INFLUENCERS PANEL

Here academic thought leaders will discuss ongoing research activities and potential key technologies for the next decade, with a view to offering topics for collaboration by international teams

- Tommy Svensson Chalmers University (Sweden)
- Alberto Leon-Garcia
   University of Toronto (Canada)
- Radhakrishna Ganti IIT Madras (India)
- Muriel Medard MIT (USA)
- Dereje Agonafer University of Texas, (Arlington, US)
- Moderators: Dame Muffy Calder (University of Glasgow, UK) - Harald Haas (University of Cambridge, UK)

#### 10:30-11:00 REFRESHMENTS

#### II:00–12:15 SESSION II STANDARDS FORUM

To present state-of-the-art on Standards for future communications and 6G and directions for future development

- Luis Jorge Romero Director General, ETSI (France)
- Ed Tiedemann Jr Senior VP Engineering and Qualcomm Fellow *Qualcomm* Technologies, Inc (USA)
- Kota Kodai ITU-Telecom Standardization Bureau (Switzerland)
- lain Sharp ATIS (USA)
- Matthew Baker
   Bell Labs Fellow, Nokia Standards (UK)

Moderators:

- John Cioffi (Stanford University, USA) - James Irvine (University of Strathclyde, Glasgow, UK)

## 12:15–13:00 SESSION III INDUSTRY INFLUENCERS FORUM II

Presentations by senior industrialists addressing emerging opportunities, technologies for 6G development and vehicles for greater industry engagement and international collaboration between industry, academe, and government agencies.

٠	Ben Allen	Director, Eutelsat OneWeb (UK)
٠	Mo Zoualfaghari	Global Technology Lead, Amazon Wireless Services Telecom (UK)
٠	Dilip Krishnaswamy	Director Bangalore Centre for Development of Telematics C-DOT (India)

- Leon Lobo
- Yoshi Nakajima

Head National Timing Centre, National Physical Laboratory (UK) 'Integration of 5G/6G high-speed communication and AI computers' Tokyo Institute of Technology, Engineering Academy of Japan (Japan)

Moderators: - Rahim Tafazolli (University of Surrey, Guildford, UK) - Toktam Mahmoodi (Kings College London, UK)

13:00-14:00 LUNCH and EXHIBITION

#### 14:00-15:30 **SESSION IV** INTERNATIONAL RESEARCH FUNDING AGENCIES PANEL

Funding Agencies will discuss their roles and identify vehicles for international collaborations, encouraging cross national joint projects advancing 6G developments

- Abouzeid Alhussein National Science Foundation (USA)
- Frederic Pillot Vinnova (Sweden)
- Head of Regional Engagement(Scotland UKRI EPSRC (UK) Janette Wark
- **Tejas Patel**
- DARPA (USA) Pekka Rantala Head of 6G Bridge Program, Business Finland (Finland)
- Moderators: - Henrik Almeida (Ericsson, UK) - Ellen Zegura (National Science Foundation, USA)

#### 15:30-16:00 REFRESHMENTS

16:00-16:30 WRAP UP **Roundtable on "Potential Collaboration Areas"** 

International outlook (geopolitical realities/risks, investments in different regions) - collaboration areas. Future Directions and Closing Remarks.

Moderators: - AI P Pisano (UC San Diego, USA) - Guru Madhavan (National Academy of Engineering, USA)

#### 17:00 DEPARTURE

11.06.2024