

5G NORMA Summer School London

20th - 22nd June 2016



King's College London

20th – 22nd June 2016

Strand, London, WC2R 2LS, England, United Kingdom

In the arena of mobile communications, the need for increased network capacity together with the ever-increasing user demand for advanced services has motivated research on 5G. The emerging 5G technologies aim to provide a revolution in the overall network architecture to allow for efficient and seamless connectivity of a highly heterogeneous set of devices and for dynamic creation of new services and applications. In addition to that, 5G networks will enable a whole new ecosystem, where new (vertical) players, business models and modes of operating and managing mobile networks will emerge. The enabler and catalyst in this change is network virtualization via Network Function Virtualization (NFV) and network programmability via Software Defined Networking (SDN).

The aim of the 5G NORMA Summer School is to provide architectural views as well as technical details on the challenges and potential solutions from key leading researchers across Europe in the scope area of 5G wireless communications. The aim is to touch upon on issues related to network softwarization, wireless access and core network virtualization, which undoubtedly constitute some of the most popular topics in the wired and the wireless networking domains among both the academic and the industrial communities.

The 5G NORMA Summer School is tailored towards network and radio engineers and researchers active or interested in virtualized and programmable future mobile networks. To this end, the event is deemed highly suitable for Post Doctoral researchers, PhD and Master students as well as participants from the mobile industry and other organizations (verticals) interested in the area of 5G networks and how this emerging technology can shape their business.

Monday, June 20

Session 1 Opening and 5G Environment

- 09:30 – 09:40 Mischa Dohler, *King's College London, UK*
Welcome and Opening of 5G NORMA Summer School
- 09:40 – 10:00 Peter Rost, *Nokia, Germany, Project Manager 5G NORMA*
Overview on Summer School and 5G NORMA
- 10:00 – 10:30 Bernard Barani, *European Commission, Brussels, Belgium*
EU Commission View on 5G (working title)
- 10:30 – 11:00 Andy Sutton (requested), *BT, UK*
Next Generation Protocol (NGP) (working title)
- 11:00 – 11:30 Maria A. Cuevas, *BT, UK*
Network operator view on 5G (working title)
- 11:30 – 12:00 **Coffee Break**

Session 2 Vertical Industries

- 12:00 – 12:30 Ali Hossaini, *CEO Cinema Arts Network, UK*
Vertical Industry Presentation 1: Performing Arts
- 12:30 – 13:00 Linus Thrybom, *ABB, Sweden, Virtuwind*
Vertical Industry Presentation 2: Smart Grid
- 13:00 – 14:00 **Lunch**

Panel discussion 1: RAN Architecture

- 14:00 – 15:00 Panelists: Federico Boccardi, *OFCOM, UK*
 Rahim Tafazolli, *University of Surrey, UK*
 Michael Meier, *Ericsson, Germany, METIS-II*
 Simon Fletcher, *RealWireless, UK, 5G NORMA*
Moderator: Luke Ibbetson, *Vodafone, UK (requested)*
- 15:00 – 15:30 **Coffee Break**

Panel discussion 2: Software Network Architecture

- 15:30 – 16:30 Panelists: Alex Galis, *UCL, UK*
 Dimitra Simeonidou, *University of Bristol, UK*
 Maria A. Cuevas, *BT, UK*
 Johannes Lessmann, *NEC, Germany*
Moderator: Uwe Janßen, *Deutsche Telekom, Germany*
- 16:30 – 17:00 Peter Rost, *Nokia, Germany, Project Manager 5G NORMA*
Day 1 Closing Note

Tuesday, June 21

Session 3 Requirements and Economics

09:00 – 10:00 *5G NORMA*
5G Requirements and Economics

10:00 – 10:30 **Coffee Break**

Session 4 Architecture and Virtualization

10:30 – 11:30 *5G NORMA*
5G NORMA concepts and architecture

11:30 – 12:30 *N.N., University of Bristol, UK*
Network virtualization in core networks

12:30 – 13:30 **Lunch**

Session 5 Data Plane

13:30 – 14:30 *5G NORMA*
Dynamic re-allocation of network functions

14:30 – 15:30 *George Kamel, 5G Innovation Center, University of Surrey, UK*
Context-aware content networking for 5G

15:30 – 16:00 **Coffee Break**

Session 6 Security

16:00 – 17:00 *Stan Wong, KCL, UK, 5G NORMA*
Security Aspects and Solutions

17:00 **Day 2 Closing**

Wednesday, June 22

Session 7 SDN and NFV

09:00 – 10:00 Frederic Francois, *Imperial College, UK*
**SDN and NFV Orchestration for Optimised Network Services
in 5G Core Networks**

10:00 – 10:30 **Coffee Break**

Session 8 Network Control, Orchestration and Management

10:30 – 11:30 *5G NORMA*
Software-Defined Mobile Network control and orchestration

11:30 – 12:30 N.N., *UCL, UK*
Network Management in 5G networks

12:30 – 13:00 Peter Rost, *Nokia, Germany, Project Manager 5G NORMA*
Wrap-up and Closing of Summer School