

# IEEE Distinguished Lecture

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 UK and Ireland Chapter

**Title: More is different: How the Science of Complex Systems can inspire Future Autonomous Networks**

**June 19, 2024: 10:00 am @ University of Essex, UK**

**Abstract:** It is expected that future mobile networks will be ultra-large-scale, highly dynamic, and complex systems, encompassing a massive number of heterogeneous devices. However, the architecture of the current wireless networks (for example, 5G or IoT) is often fixed, and the optimization tasks are defined to cope with specific and identified challenges and services. Hence, the prevailing manual and predetermined optimization and configuration tasks are no longer appropriate for future networks. Furthermore, we are increasingly dealing with new kinds of networks - like networks of drones, the Internet of Everything, intelligent transportation systems - which bring in several new challenges related to network responsiveness and scalability. We are working on resolving such issues by proposing a framework inspired by theories and tools borrowed from complex systems science, focusing on the impact of network topology on the system's (i) information representation and transfer, (ii) robustness, and (iii) self-synchronisation capabilities.

**Registration:** <https://events.vtools.ieee.org/event/register/421232>

**Venue:** Room EBS.2.1, University of Essex, Wivenhoe Park, Essex, UK

<https://events.vtools.ieee.org/m/421232>



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