

 Department Seminar

Dear Colleagues & Students,

You are cordially invited to a special seminar

Materials for the Future

Presented by:



Professor Sir Konstantin Sergeevich NOVOSELOV FRS

Department of Materials Science and Engineering, National University of Singapore

Date: **28th April 2026, Tuesday** Time: **10:00am-12:00pm**

Venue: **Block EA, Level 6, EA-06-03 Seminar Room**

Hosted by: **Associate Professor Daria Andreeva-Baeumler**

Abstract:

A number of challenges of the modern world could potentially be resolved at the low level with innovative materials. However, new types of materials need to be designed for such applications, with some characteristics of biological systems: such as self-healing capabilities with memory functions, and those which can evolve differently depending on external conditions. I will discuss methodologies to design such artificial living systems and the areas of their applications. As AI is playing a crucial role in the process, I will discuss a variety of AI approaches for materials design. Also, a very important stream is the materials for AI: I will consider the utilisation of new materials for novel, beyond von Neumann computational solutions, which allows significant reduction in the power consumption of modern data centres.

Biography:

Prof Sir Konstantin 'Kostya' Novoselov FRS was born in Russia in August 1974. He is best known for isolating graphene at The University of Manchester in 2004, and is an expert in condensed matter physics, mesoscopic physics and nanotechnology. Every year since 2014, Kostya Novoselov has been included in the list of the most highly cited researchers in the world. He was awarded the Nobel Prize in Physics in 2010 for his achievements with graphene. His other notable achievements include his work on other 2D materials, their heterostructures, and lately on functional intelligent materials and the application of AI for materials design.

Kostya is a Director of the Institute of Functional Intelligent Materials and holds a position as a Tan Chin Tuan Centennial Professor at the National University of Singapore. He is also part-time Langworthy Professor of Physics and a Royal Society Research Professor at The University of Manchester.

He graduated from the Moscow Institute of Physics and Technology, and undertook his PhD studies at the University of Nijmegen in the Netherlands before moving to The University of Manchester in 2001. Professor Novoselov joined the National University of Singapore in 2019. He has published more than 500 peer-reviewed research papers, including more than 30 in Nature or Science. His h-index is above 155. The paper on the discovery of graphene has more than 60,000 citations, and was included by Nature in the list of 100 most-cited papers of all time. He has received numerous prizes, including Nicholas Kurti Prize (2007), International Union of Pure and Applied Physics Prize (2008), MIT Technology Review Young Innovator (2008), Europhysics Prize (2008), Bragg Lecture Prize from the Union of Crystallography (2011), Kohn Award Lecturer (2012), Leverhulme Medal from the Royal Society (2013), Onsager Medal (2014), Carbon Medal (2016), Spiers Memorial (2016), Otto Warburg Prize (2019), John von Neumann Professorship from the John von Neumann Computer Society (2022), and the Platinum Medal from the Institute of Materials, Minerals and Mining (2024), among many others. He was knighted in the 2012 New Year Honours.

Looking forward to seeing all of you!