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Convergence-Enabler Nanotechnology – Past, Present and Future

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Ever since ‘nanotechnology’ became a widely used term in the vocabulary of research and development, the scientific field it aimed to describe has been subject to significant changes and shifts. Although nanotechnology has always been described as a ‘general purpose technology’, it is remarkable that no other scientific discipline that takes its origins in clearly defined natural phenomena underwent as rapid and pronounced a transformation, as that of nanotechnology did in the past 25 years: once a playground for chemists and engineers, who sought to understand and harness the novel properties of materials on the nanometer scale, nanotechnology is now most often found as an enabler of life science analytics, or as unnamed, but crucial, components in high-tech devices. This presentation looks at the past 25 years of nanotechnology research and development and illustrates the shifts and changes that shaped the field as it presents itself today. In an attempt to explain the metamorphosis of nanotechnology, a comparative analysis of the field of biotechnology has been conducted; in combination, the two disciplines provide a visualized storyline of increasing technology convergence. While the observed changes of nanotechnology are evidence of strong research dynamics, and confirmation for an ongoing application of nanotechnological innovations in a variety of markets, they pose challenges to policy makers and those analyzing the socio-economic impact of the technology. This presentation therefore also looks at the trends in science, technology and innovation (STI) policies over the past three decades with regard to their directionality and generality. The assessment of both the field of nanotechnology and the analysis of policies pertaining to it enable the audience to retrace the technology’s historic development, to review its markers and indicators, and to ultimately obtain an impression of its likely future role in the next industrial revolution.

Biography

Dr Steffi Friedrichs has been a leading expert, policy advisor and business representative for emerging technological innovation for nearly 20 years. She is currently the Founder and Director of AcumenIST, an internationally active consultancy that drives the advancement of science- and technologybased innovations through proactive initiatives in the public and private sector. Before joining AcumenIST, Steffi worked for the OECD, where she developed its definition, indicators and impact assessment of biotechnology and nanotechnology, and led two international workshops on genome editing. Steffi has a strong track record in the establishment, development and representation of technologybased companies; she was the Founder and General Director of the Nanotechnology Industry Association (NIA) group, Co-Founder and Member of the Board of Directors of the Chicago Micro- & Nanotechnology Community (CMNC), Director of the Master’s Program in Micro- and Nanotechnology at the University of Cambridge, and lecturer in Inorganic Chemistry and Solid State Chemistry at the University of Oxford.

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