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Keynote: From Basic Sciences to Applications: Towards Sustainable Societies

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Dr. Amal Kasry is an academic/scientist with a wide range of international experiences in Materials Science and nano-Biotechnology. She received a fellowship from the Max Planck Institute for Polymer Research (MPIP) in 2003, and obtained her PhD from the Johannes Gutenberg University, Mainz, Germany in 2006, in Biophysics, where her major work was in biosensing applications. She has worked as an academic and researcher in different areas around the world; including UConn Health Centre, USA; Cardiff University, UK; Austrian Inst of Technology, Austria; and industrial places like IBM, USA and Nitto Denko, Singapore. She joined the British University in Egypt on 2015 as an assistant professor in the faculty of Engineering for four years, before being appointed as the Director of the University Nanotechnology Research Centre (NTRC), where she developed strategies to manage the scientific and the administrative aspects of the Centre. Her major research is focusing on developing biosensing technologies and employing nanomaterials in the field of biosensing. Dr Amal Kasry is the author of more than 30 peer reviewed publications in prestigious journals, and holds three patents, she is also a reviewer for several scientific publishing houses and funding agencies. Since May 2021, she is the Chief of Section for Capacity Building in Basic Science and Engineering (CB) in Natural Sciences Sector at UNESCO.

ABSTRACT

Sustainable Development Goals (SDGs) are the means to achieving the United Nations Agenda 2030, adopted in September 2015, through focus on poverty reduction, infrastructure development, education, achieving gender equality and empowering all women and girls, etc., among other critical social, economic and environmental areas. Almost all 17 of these goals are anchored on science and technology.

It is extremely important to understand the link between physics, chemistry mathematics, and biology and applications such as energy and health, as well as new emerging technologies. It is even more important for scientists to recognize the link between these applications and technologies and the sustainable development. During the past two decades, an emerging field such as nanotechnology for example, has risen, not only as a hot research topic, but as the tool that can influence the future technologies and solutions. By definition, nanotechnology is the area of science and engineering where materials in the nanoscale (1-100 nm) are utilised in the design and the production of e.g. devices that can be implemented in several applications, such as Energy, Health, …etc, therefore these areas of research that are affecting our daily lives are being taken to a new perception and possibilities for great advancement, which will lead to even more sustainability.

In this talk, I will focus on some examples of basic science disciplines with their applications and show their importance for the sustainability of the societies. These examples will include the link between basic sciences and energy, nanotechnology, and health. I will also discuss some of the programmes and activities that we are currently performing at UNESCO to strengthen and promote basic sciences and the potential impact of this on the different societies.