

## **Challenges in Micro and Nano Science and Technology: How can we make an impact?**

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### ***Abstract***

Advanced materials based on micro and nano science and technology are creating waves worldwide with significant impact on the quality of our life. The acceleration of growth in this area has been exponential beginning this millennium, partly driven by the increasing convergence of chemistry, physics, material science, biology and digital technology. The contours of this emerging science and technology is altering our conventional ways of thinking about disciplines in science, bringing in its wake new challenges of how we learn, practice the science and create value out of this technology. Cross-disciplinary collaboration lies at the core of this field and is the key to success; yet our system of imparting education and organizing research in our faculties and departments appears sadly oblivious of contemporary needs.

In this talk, I will discuss some facets of these challenges. as it pertains to higher education in science, organization of research in our institutions and the manner in which we can bring the benefits of this science to our society. The journey from molecules to functional devices and finally to applications and markets is tortuous and traverses across many disciplines of knowledge; they need to be orchestrated well if we desire and aspire for any significant outcomes. This requires transformative thinking as well as courage to act.