Third Laureate
Invention & Innovation

- **Research Work Title:** **Development of Smart Materials and Technology for Sensing Mercury from Industrial Effluents**
- **Researcher:** **Prof. Suresh Kumar Bhargava**
- **Country:** **Australia**
- **Field:** **Materials & Metallurgy**
- **Scientific Affiliation:** **RMIT University, Melbourne, Australia**

Abstract:

Professor Suresh Bhargava has an outstanding track record of taking his research excellence to industrial relevance, working with large Australian industry partners to develop mercury sensing and abatement technology solutions. Over the last 10 years, he has developed a patented sensor technology for measuring mercury levels within alumina refinery processes and effluent streams in partnership with Alcoa and BHP Billiton Worsley Alumina, as well as established significant expertise in handling and analyzing complex real world samples (<1 ppb Hg) to understand the fate/speciation of mercury within industrial processes in collaboration with ExxonMobil and Alcoa Australia. The sensor utilizes quartz crystal microbalance technology patterned with patented gold nanostructures and performs with the sensitivity, selectivity, dynamic range and recovery required for monitoring mercury within alumina refinery processes. The technology has now been licensed for commercialization to MinSensor Pty.Ltd. This is a significant, innovative breakthrough in air pollution control.

Biography:

Suresh Bhargava obtained his PhD from University of Exeter, United Kingdom in 1982. He was conferred DSc (Honoris Causa) at Rajasthan University by President of India, in 2009. He is an elected fellow of six learned academies around the world including Australian Academy of Technological Sciences and Engineering. Suresh is a world-renowned interdisciplinary scientist and is recognized for delivering research excellence that underpins significant industrial applications. As a passionate advocate in the application of technological science and engineering to innovation; he provides consultancy and advisory services to many government and industrial bodies around the world including BHP Billiton, Alcoa World Alumina, Rio Tinto and Mobil Exxon. During his distinguished career; Suresh was awarded many prestigious awards including 2015 CHEMECA medal (The most prestigious award in chemical engineering profession in Australia and New Zealand). He has also strived over the years to create solid and sustainable global research partnerships to improve and advance Science and Technology.