



## Outreach and Partnership Committee (OPC)

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- Event:** Panel Session within IEEE CCECE 2023
- Date:** Sunday, September 24, 2023
- Time:** 15:00 - 17:30
- Venue:** Delta Hotels Regina, 1919 Saskatchewan Drive, Regina, Saskatchewan
- Panelists:**
1. Dr. Robert Crawhall, Executive Director, Canadian Academy of Engineering  
Profile: <https://rb.gy/tw2qe>
  2. Dr. Maïke Luiken, Chair, Planet Positive 2030, IEEE Standards Association  
Profile: <https://ca.linkedin.com/in/luiken>
  3. Dr. Richard Boudreault, Chair, Board of Governors, FNUC  
Profile: <https://ca.linkedin.com/in/richardboudreault>
  4. Dr. Siddharth Pandey, Researcher, NASA JPL  
Profile: <https://www.linkedin.com/in/siddharthpandey24>
- Moderator:** Dr. Samantha Sriyananda, Secretary, OPC, IEEE Canada

**Topic:** Socio-Economical Impact Due to Initiatives Towards Green Engineering

Every engineering product or service has direct or indirect environmental, social, and economic impacts. It's a paramount need to understand how engineering design decisions influence these impacts, and at the same time make decisions that collectively lead to the maximum positive or the minimum negative impacts on the economy, environment, and society. Because the environment, society and economy are the three pillars of sustainability on this planet where engineers show great interest in designing and strengthening all these three pillars. However, contributors to products and services like engineers, scientists, investors and entrepreneurs are often constrained to focus on the environmental and economic aspects, leaving out social sustainability due to a lack of understanding and resources. Because their main focus is on the conventional battle between the depletion of natural resources and making the products and services for affordable prices at the competitive market while fostering different technological industries. Furthermore, transition of the global manufacturing and energy utilization is going to result in a large number of engineering projects of different scales from micro to mega where Canada is also an active participant in these projects. In this case, it is imperative to realize that this is the best time to start the adoption of green engineering concepts and technologies for equal and sustainable development of these three pillars.

### Time schedule

- 15.00 - 15.10: Opening and welcome (Samantha Sriyananda).  
15.10 - 17.00: Panel discussion (total time of approx 28 min for each panelist).  
17.00 - 17.27: Q&A.  
17.27 - 17.30: Closing remarks (Samantha Sriyananda).

## Members of the Panel



**Dr. Robert Crawhall**  
Executive Director,  
Canadian Academy of Engineering

Robert Crawhall is the Executive Director of the Canadian Academy of Engineering (CAE). As Executive Director of the CAE, Robert is responsible for the overall operations of the Academy, implementation of the Strategic Plan, partnerships with other organizations, engagement with Fellows of the Academy and relationships with sponsors.

Robert has over 30 years of experience in technology innovation. He serves on several Board of Directors including private and not-for-profit organizations and is active in standards development. His prior positions included CEO of the National Capital Institute of Telecommunications, Executive Director of the Ontario Research Network in Electronic Commerce, CEO of NanoOntario and VP Operations of Precarn Incorporated. Robert received his BEng degree in mechanical engineering with a minor in business and MEng degree in electrical engineering from McGill University and PhD degree in electrical engineering from the University of Ottawa. He is a Fellow of the Canadian Academy of Engineering, a Senior Member of the IEEE, Member of the Canadian Society of Senior Engineers (CSSE), a registered engineer in the province of Ontario, a certified Project Management Professional (PMP) and a certified Director (ICD.D).



**Dr. Maïke Luiken**  
Chair, Planet Positive 2030,  
IEEE Standards Association

Maïke Luiken, PhD, SMIEEE, IEEE-HKN, chairs Planet Positive 2030 – an initiative of the IEEE Standards Association – as well as the P7800 Standards Working Group: Recommended Practice for Addressing Sustainability, Environmental Stewardship and Climate Change Challenges in Professional Practice and she co-chairs the IEEE Future Directions Climate Technologies Sustainability Initiative. She served as the IEEE Vice President, Member & Geographic Activities, in 2021 and as President of IEEE Canada during 2018 and 2019 and, in 2018, as Chair, Policy Track, IEEE Internet Initiative.

Maïke is a longtime advocate for sustainable development and is driven to develop and leverage technology to achieve a more sustainable planet.

She is a managing director, R&D, at a start-up company and an Adjunct Research Professor at Western University, London, Canada.

Previously, in Sarnia, Canada, she led the Bluewater Sustainability Initiative, 2006 – 2013, and was the founding Director of the Bluewater Technology Access Centre (now Lambton Manufacturing Innovation Centre) following eight years as Dean at Lambton College with several portfolios: School of Technology and Applied Sciences, Business Development, Sustainable Development and Applied Research. Her strategic leadership in the development of the applied research & innovation capacity and portfolio led to Lambton College becoming one of the top Research Colleges in Canada.

Her areas of interest and expertise span diverse technical areas from ICT, energy and water to advanced manufacturing and nanotechnologies as well as technology design principles, sustainability by design, ethics in design and policy associated with their implementation. She has particular interest in how progress in one area, e.g., in ICT, enables advances in other disciplines and in how deployment of various technologies contributes – or not - to achieving sustainable development.

Maïke has experience in the public and private sectors in Canada and has worked in the USA and Germany. She also has more than 20 years of experience serving on Boards of Directors of local, regional, and global organizations. Maïke is a Fellow of the Engineering Institute of Canada. Maïke received Staatsexamen, HL, in Mathematics and Physics from Technische Universität Braunschweig, Germany, and PhD degree in Physics from University of Waterloo, Waterloo.



**Dr. Richard Boudreault**  
Chair, Board of Governors,  
First Nations University of Canada

Richard Boudreault is a polymath, purposeful and successful STEM serial entrepreneur, known for his expertise in innovation management and commercialization. With over four decades of experience in board governance and leadership roles, he has made significant contributions to various sectors including Advanced Materials, Clean Tech, Biotechnology, Energy Transition, Quantum Computing, Robotics, and Aerospace.

As a physicist-entrepreneur, Richard has founded and led 13 highly successful STEM ventures, raising their value to approximately a billion dollars. He has a remarkable track record in developing innovative solutions and holds numerous international patents. Richard's current venture, Awn Nanotech, focuses on using biomimicry to collect water from the atmosphere, addressing the global water crisis. He is also actively involved in In-Situ Resources Utilization for lunar missions and chairs the board of prominent organizations such as the First Nations University of Canada and Institut national de la recherche scientifique (INRS).

With a wealth of leadership and governance expertise, Richard has served on more than 30 boards, including public, private, and para-governmental organizations. He is widely recognized as an international authority in space engineering and science, and has contributed to major Big Science projects. Richard's extensive experience spans technology, finance, marketing, and academia, making him a respected technology leader in the fields of quantum technologies, energy, optics, and more. Richard received BSc degree in Physics

from Université de Montréal, Montreal, MEng degree in Space Physics from Cornell University, USA, and PhD degree in Biology from Université de Sherbrooke, Quebec.



**Dr. Siddharth Pandey**

Researcher and Space Systems Engineer,  
Fugro, Australia

Siddharth is currently a Space Systems Engineer at Fugro working on Australia's first Lunar Rover (Trailblazer Project, funded as part of Australian Space Agency's Moon to Mars Initiative) which will support NASA's Artemis program. Project Management tasks on remote management for NASA Commercial Lunar Payload Services (CLPS) missions. He was previously working at Applied Robotics Systems, NASA Jet Propulsion Laboratory on hardware development for Venus and Icy Moon missions. Prior to that, Siddharth established and lead an initiative to establish Centre of Excellence in Astrobiology at Amity University Mumbai: India's first dedicated Centre for Astrobiology and Space Biology research in the country. Siddharth is a space engineer with project management and leadership experience working with teams of astrobiologists. Prior to this, he has experience in building sample collection instruments for Mars and Venus surface missions while working at NASA Ames, USA. He has been engaged in education and public outreach activities and is motivated to use Space as a tool to spread awareness, social consciousness, and inclusiveness within our communities. Siddharth received BTech degree in Aerospace Engineering from Amity University, India, MS degree in Space Systems Engineering from TU Delft, Netherlands, and PhD degree in Aerospace Engineering from UNSW Canberra, Australia.