

## Opening Address

### Welcome Message from Advisory Chair

Dear colleagues, professors, researchers, ladies and gentlemen.

On behalf of King Mongkut's University of Technology North Bangkok (KMUTNB), I would like to express my sincere gratitude and welcome you to the 4th Research, Invention, and Innovation Congress (RI2C 2023). I would like to thank you all who sincerely contributed to this event in order to make it a success. This wouldn't have been possible without the support of each and everyone present here. Before we kick start the conference, I would like to take this opportunity to make some general remarks and touch briefly on the history of the RI2C Conference.

RI2C is the initials of Research, Invention, and Innovation Congress, the international conference carried out regularly by King Mongkut's University of Technology North Bangkok. RI2C is held first time in 2019 at Arnoma Grand Hotel Bangkok and since there it has been continued in a virtual platform from 2021 to this year 2023. As KMUTNB is a university of invention and innovation, RI2C aims to provide a forum for the knowledge exchange regarding the development of multidisciplinary researches for the novel invention and innovation. Moreover, our conference offers an opportunity for all accepted full papers to be submitted to the proceedings indexed by Scopus. Previous RI2C events successfully published more than 450 papers in the proceedings indexed by Scopus, such as Key Engineering Materials, Materials Today: Proceedings, E3S web of conference, and IEEE Xplore.

In this year, it is my hope that the 4th Research, Invention, and Innovation Congress would be able to achieve its objective in providing an effective forum for academicians, researchers, and practitioners to advancing knowledge, research, technology and innovation, under the theme of the conference "Innovation for Better Life". Last but not least, my deepest gratitude goes to the International Advisory Board, Organizing Committee, Scientific Committee, all honored Keynote speakers, International Peer-Review team, all sponsors, and volunteer who have directly and indirectly supported the success of this conference. The Science and Technology Research Institute has organized a vibrant scientific program and is working hard to present highly respected and internationally notorious speakers. Although we try our finest to be professional, on behalf of KMUTNB, please accept our sincere apologies should there be inconveniences that occur before, during, or after the event.

I wish you a very productive conference with exciting and encouraging discussions and exchange of knowledge so that together we can anticipate a future of groundbreaking knowledge, research, and technology for innovations. Enjoy your participation in the RI2C 2023 and memorable time here. We hope you return next year with even more colleagues for RI2C 2024, KMUTNB's 65th Anniversary.

Thank you. Have a wonderful conference days.

Prof.Dr.-Ing.habil. Suchart Siengchin

President of KMUTNB, Thailand