



Welcoming Remarks from the Chairman

The honorable Rector of Universitas Gadjah Mada, Prof. Dr. Panut Mulyono.

Dear distinguished guests, our invited speakers, and participants of this conference.

On behalf of the Program Committee, I kindly welcome you to the 7th International Conference on Science and Technology (ICST 2021). It is an honor to be here with you today. The ICST 2021 is a part of the UGM Annual Scientific Conferences (UASC) series held by Badan Penerbit dan Publikasi (BPP), Universitas Gadjah Mada.

Our purpose is to provide an ideal academic platform for researchers to disseminate their research and the development of science and technology. This year we hold six symposia: the Computer and Information Technology Symposium; the Electronics, Power, Communication, Control, and Instrumentation Symposium; the Mechanical and Industrial Engineering Symposium; the Remote Sensing and Geomatics Symposium; the Geoscience and Environmental Management Symposium; and the Life Sciences, Materials, and Applied Chemistry Symposium.

This year, we have invited seven renowned speakers around the world: Prof. Tomohiro Yokozeki from the University of Tokyo, Japan; Prof. Gil Santos from De La Salle University, the Philippines; Prof. Shou-Yan Chou from National Taiwan University of Science and Technology, Taiwan; Dr. Ruchi Gupta from the University of Birmingham, United Kingdom; Prof. Nobuyuki Ichikuni from Chiba University, Japan; Dr. Vooi Voon Yap from Universiti Tenku Abdul Rahman, Malaysia; and Dr. Mohamad Shazwan Shah Jamil from Universiti Teknologi Malaysia. We thank the speakers for their expertise and knowledge that will bring great discussion during the conference.

This year, we received 290 submissions from 13 countries from Indonesia, Malaysia, the Philippines, India, Taiwan, Japan, Iran, France, United Kingdom, Russia, Saudi Arabia, the USA, and Mexico. All manuscripts went through a thorough review process. We will submit the accepted and presented papers to journals or proceedings such as AIP Conference Proceedings, E3S Web of Conferences, and Key Engineering Materials. All of them are indexed by Scopus.

This conference will not have become a reality without the support and assistance of many parties. On this occasion, I would like to sincerely thank the Rector of Universitas Gadjah Mada, BPP, DSSDI officers, all invited speakers, and the organizing committee for arranging all needed facilities for the success of this conference. We also would like to thank reviewers for their valuable comments and suggestions.

Although we cannot greet each other in our usual way, we still have another way to interact, discuss, share insights, and enhance our minds with other researchers and colleagues from various perspectives. We hope you find this event fruitful for your future career, for the sake of knowledge and humankind's benefit, and we hope you will enjoy this conference. Thank you.

Yogyakarta, September 7, 2021

Chairman of the Organizing Committee,
Dr.Eng. Titis Wijayanto, S.T., M.Des.



Welcoming Remarks from the Rector of Universitas Gadjah Mada

Distinguished Keynote Speakers,
Distinguished Invited Speakers and Participants,
Conference's Committee,
Ladies and Gentlemen.

Good morning, good afternoon, good evening.
May peace be upon all of us.

On behalf of Universitas Gadjah Mada, it is my pleasure to welcome you all to the 7th International Conference on Science and Technology (ICST 2021) hosted by Universitas Gadjah Mada (UGM). First of all, I would like to extend my gratitude to distinguished keynote speakers. Please allow me to express my sincere appreciation for Prof. Tomohiro Yokozeki from University of Tokyo, Japan; Prof. Gil Nonato C. Santos from De La Salle University, Philippines; Prof. Shou-Yan Chou from National Taiwan University of Science and Technology, Taiwan; and Dr. Ruchi Gupta from University of Birmingham, United Kingdom.

History of UGM's education has earned a reputation as a pioneering university, pushing the boundaries between academics and professionals across the world, to serve and discover scientific progress as a valuable source of knowledge for the benefit of humankind. With its Annual Scientific Conference Series, Universitas Gadjah Mada builds upon this mission, holding annual gatherings for the brightest minds from Indonesia and abroad to share the latest findings in their respective fields. Through collaboration with our international partners, this series has seen enormous success, shaping the development of scientific networks, increasing Indonesian authors' prominence in publications with a global readership, and underscoring UGM's place as a standard-bearer of scientific development.

Today, the world is in a pandemic situation, which requires us to adapt to the current situation. The pandemic has changed many habits of human life, but we believe that this situation cannot diminish our intellectual ability to always contribute knowledge to the world. The wonderful thing about ICST 2021 is bridging the gap between disciplines to share their innovation, research, and ideas about our scientific issues today. UGM is proud to be leading the way in facilitating the interdisciplinary research dissemination of cutting-edge information. We are proud to conduct this conference, even though we conduct this conference virtually.

For the last 7 years, UGM hold ICST as a part of the Annual Scientific Conference to share the latest findings in their fields. It proves UGM's consistency to preserve the international academic's relation. We are honored and humbled to many experts who have attended this year's conference. We thank to the speakers for the expertise and knowledge that will bring to great discussion during the conference. Special thanks are also extended to the organizing committee members for their hard work, as well as the entire staff of UGM's Badan Penerbit dan Publikasi (BPP) for making and bringing the ICST 2021 to a reality. And finally, we would like to thank all the conference participants who will contribute to making this truly the most memorable ICST. For the unfinished business, this

event should impact the fields of science, technology and also our humanity for the next many years. I am expecting this conference will also provide us better linkage and friendship.

I am sure you will have fruitful and rewarding exchanges. I hope you all enjoy this conference.

Thank you very much,
God bless us,

Rector of Universitas Gadjah Mada,
Prof. Ir. Panut Mulyono, M.Eng., D.Eng.