

Preface

The 2nd Advanced Materials Conference 2014 (AMC 2014) organized by SIRIM Berhad was held in Langkawi, Kedah Malaysia from 25-26 November 2014 at Bayview Hotel Langkawi. With a theme of “Advanced Materials for Sustainability and Growth”, this conference brings together scientists who play a central role in the development of advanced materials and technology from every sector of academia and industry. The conference aims to develop critical assessment of existing work and future directions in advanced materials research. It serves to provide a communication stage for Malaysian scientists working in the field of advanced materials research and technology with their counterparts from Asian and the rest of the world. The conference is expected to create effective networking and to promote interdisciplinary collaborations among the research institutes, universities and the industries that would contribute to the rapid progress in advanced materials research.

Topics discussed in the conference include:

- Energy and environment
- Composite
- Biomaterials
- Powder production and preparation
- Hard metal, steels and alloys
- Filter and porous materials
- Failure analysis
- Advanced characterizations
- Coating and surface engineering
- Semiconductors, Optical and photonic materials
- Machining/mechanical alloying
- Electrical/magnetic materials
- Automotive applications
- Nuclear materials
- Testing and materials evaluation
- New functional materials

Committee

Organizer

SIRIM Berhad, Malaysia

Patron

Dato' Dr. Hj. Zainal Abidin Mohd Yusof
(President & CEO of SIRIM Berhad)

Advisor

Dr. Mohd Radzi Mohd Toff

Organizing Committees

Dr. Rosdi Ibrahim
Dr. Mohd Afian Omar
Noor Zalikha Mohamed Islam
Muhammad Jabir Suleiman
Siti Ai'shah Mohamad Saad
Najah Abd Halim
Muhamad Nor Anazim Rejab
Ismarul Nizam Ismail @ Abd Kadir
Noorsyakirah Abdullah
Mohd Nasha' Ain Nordin
Ahmad Aswad Mahaidin
Mohamed Izat Mohd Ezwan
Bakar Meh
Nurazilah Zainon
Nurhaslina Johari
Zaidi Ariffin

Technical Committees

Noor Zalikha Mohamed Islam
Zuhana Ahmad Zubir
Norhidayah Abu
Noorsyakirah Abdullah
Nurul Awanis Johan
Syazana Binti Abu Bakar
Fazira Suriani Mohamed Fadzil
Muhammad Jabir Suleiman
Mohamed Izat Mohd Ezwan

Reviewers

Dr. Rosdi Ibrahim, SIRIM Berhad.
Dr. Mohd Afian Omar, SIRIM Berhad.

Dr. Muhammad Hussain Ismail, Universiti Teknologi MARA.
Dr. Afidah A. Rahim, Universiti Sains Malaysia.
Dr. Neelam Shahab, SIRIM Berhad.
Prof. Khairun Azizi Mohd. Azizli, Universiti Teknologi Petronas.
Dr. Mohd Ali Sulaiman, SIRIM Berhad.
Prof. Dr. Naveed Ramzan, University of Engineering and Technology Lahore.
Mr. Mazlan Mohammad, SIRIM Berhad.
Assoc. Prof. Talib Ria Jaafar, Universiti Teknologi MARA.
Dr. Uju Sadi, Bogor Agricultural University.
Dr. Kamisah Mohamad Mahbor, Universiti Teknologi MARA.
Prof. Hu Jinlian, The Hong Kong Polytechnic University.
Dr. Wan Sharuzi Wan Harun, Universiti Malaysia Pahang.
Assoc. Prof. Dr. Azwani Sofia Ahmad Khair, Universiti Sains Islam Malaysia.
Prof. Ir. Dr. Mohd Sapuan Salit, Universiti Putra Malaysia.
Assoc. Prof. Dr. Nuraini Abdul Aziz, Universiti Putra Malaysia.
Dr. Mohd Azmir Mohd Azhari, Universiti Malaysia Pahang.
Assoc. Prof. Shamsul Rahman M Kutty, Universiti Teknologi Petronas.
Dr. Hasnah Mohd Zaid, Universiti Teknologi Petronas.
Assoc. Prof. Dr. Patthi Hussain, Universiti Teknologi Petronas.
Dr. Darmawati Mohd Yunos, SIRIM Berhad.
Dr. Mohd Firdaus Omar, Universiti Malaysia Perlis.
Assoc. Prof. Dr. Aidah Jumahat, Universiti Teknologi MARA.
Dr. Mohd Asri Selamat, SIRIM Berhad.
Dr. Abrar Inayat, Universiti Teknologi Petronas.
Prof. Dr. Ahmad Fauzi Mohd Noor, Universiti Sains Malaysia.
Prof. Dr. Abdul Rahman Mohamed, Universiti Sains Malaysia.
Assoc. Prof. Dr. Zainovia Lockman, Universiti Sains Malaysia.
Assoc. Prof. Dr. Julie Juliewatty Mohamed, Universiti Malaysia Kelantan.
Dr. Chantara Thevy Ratnam, Malaysia Nuclear Agency.
Assoc. Prof. Dr. Azura A. Rashid, Universiti Sains Malaysia.
Dr. Banjuraizah Johar, Universiti Malaysia Perlis.
Assoc. Prof. Dr. Siti Rohana Majid, Universiti Malaya.
Dr. Ahmad Zafir Romli, Universiti Teknologi MARA.
Dr. Mohd Ridzwan Ishak, Universiti Putra Malaysia.
Dr. Filipe Manuel Ramos Paradela, Universiti Teknologi Petronas.
Assoc. Prof. Dr. Wong Tin Wui, Universiti Teknologi MARA.
Assoc. Prof. Dr. Asim Laeeq Khan, Institute of Information Technology, Lahore.
Dr. Azlin Fazlina Osman, Universiti Malaysia Perlis.
Assoc. Prof. Dr. Azman Seenii, Universiti Sains Malaysia.
Dr. C.H. Voon, Universiti Malaysia Perlis.
Dr. Fatimah Al-Zaharah, Universiti Teknikal Melaka.

Assoc. Prof. Dr. Hamimah Abd.Rahman, Universiti Tun Hussein Onn Malaysia.
Dato' Prof. Dr. Ismail Ibrahim, Jabatan Mineral dan Geosains Malaysia.
Dr. Mohd Ahadlin Daud, Universiti Teknikal Melaka.
Assoc. Prof. Dr. Mohd Rizal Salleh, Universiti Teknikal Melaka.
Dr. Nadras Othman, Universiti Sains Malaysia.
Dr. Nor Azwin Ahad, Universiti Malaysia Perlis.
Dr. Noraishah Shamsuddin, SIRIM Berhad.
Prof. Dr. Mohammad Asadullah, Universiti Teknologi MARA.
Assoc. Prof. Dr. Rozana Mohd Dahan, Universiti Teknologi MARA.
Assoc. Prof. Dr. Sabar Bauk, Universiti Sains Malaysia.
Prof. Dr. Shamsul Baharin Jamaludin, Universiti Malaysia Perlis.
Mrs. Siti Mariam Mohamad, SIRIM Berhad.
Dr. Yeap Swee Keong, Universiti Putra Malaysia.
Dr. Yusran Sulaiman, Universiti Putra Malaysia.
Dr. Zunaida Zakaria, Universiti Malaysia Perlis.
Dr. Shuib Husin, TNB Research Sdn. Bhd.
Dr. Mimi Azlina Abu Bakar, Universiti Teknologi MARA.
Ir. Assoc. Prof. Dr. Mariatti Jaafar, Universiti Sains Malaysia.
Mr. Ariff Baharom, SIRIM Berhad.
Mr. Abdul Hakim Hashim, SIRIM Berhad.
Assoc. Prof. Dr. Amin Hashim, Universiti Teknologi MARA.
Dr. Teng Wan Dung, SIRIM Berhad.
Dr. Mohamad Zahid Abdul Malek, SIRIM Berhad.
Mr. Doll Said, SIRIM Berhad.
Dr. Ahmad Hazri Ab Rashid, SIRIM Berhad.
Dr. Ruzniza Mohd Zawawi, Universiti Putra Malaysia.
Dr. Zanariah Ujang, SIRIM Berhad.
Dr. Thomas Hartwig, Fraunhofer-Gesellschaft, Germany.
Dr. Yu Lin Zhong, Monash University.
Dr. Razif Muhammed Nordin, Universiti Teknologi MARA.
Assoc. Prof. Dr. Razali Idris, Universiti Teknologi MARA.
Mr. Mat Tamizi Haji Zainuddin, SIRIM Berhad.
Assoc. Prof. Dr. Mohammad Azmi Bustam, Universiti Teknologi Petronas.
Assoc. Prof. Dr. Azizah Shaaban, Universiti Teknikal Melaka.
Assoc. Prof. Dr. Kahar Osman, Universiti Teknologi Malaysia.
Dr. Suriani Shamsudin, SIRIM Berhad.
Prof. Dr. Masjuki Haji Hassan, Universiti Malaya.
Dr. Mazli Mustapha, Universiti Teknologi Petronas.
Dr. Zuratul Ain Abdul Hamid, Universiti Sains Malaysia.
Dr. Arjulizan Rusli, Universiti Sains Malaysia.
Dr. Anita Ramli, Universiti Teknologi Petronas.
Assoc. Prof. Ir. Dr. Hj. Hamdan Ya, Universiti Teknologi Petronas.
Assoc. Prof. Dr. Othman Mamat, Universiti Teknologi Petronas.
Dr. Zarina Aspanut, Universiti Malaya.