

Message from Guest Editors

Dear readers and contributors,

We would like to thank and congratulate all our contributors from various parts of the world in taking part in the *International Conference on X-Ray and related Technique in Research and Industry* (ICXRI 2012) held at Vistana Hotel, Pulau Pinang, Malaysia from 3rd to 5th of July 2012. ICXRI 2012 was organized by the Malaysian X-Ray Applications Society (XApp) which is a Chapter in the Malaysian Nuclear Society (MNS). A biannual conference, ICXRI was held since 1992 and has produced many research papers and bolstered numerous collaborations in the past.

A total of 151 participants attended ICXRI 2012 with 132 scientific papers were presented (oral and poster). We are also pleased to be hosting 7 scientific equipment exhibitors in this conference. The conference topic covers the usage of x-ray and other related techniques in research and industry. We are also delighted to have selected 94 high quality manuscripts, to be published in *Advanced Materials Research 2012* by Trans Tech Publications Ltd. All manuscripts were peer-reviewed by experts from related fields, had satisfied the referee's requirements and thus, reflect high standards. We believe that by doing so, the quality and integrity of the scientific contributions in the ICXRI series can be maintained and improved.

Finally, we would like to extend our invitation to all scientists, researchers and sponsors to participate in the coming ICXRI 2014 and publish their efforts in high-quality indexed publications.

Guest Editors

Professor Dr. Zainal Arifin Ahmad (Universiti Sains Malaysia) – Chief

Professor Dr. Muhd Ambar Yarmo (Universiti Kebangsaan Malaysia)

Professor Dr. Fauziah Haji Abdul Aziz (Universiti Pertahanan Malaysia)

Dr. Meor Yusoff Meor Sulaiman (Malaysian Nuclear Agency)

Dr. Badrol Ahmad (TNB Research)

Associate Prof. Dr. Khairul Nizar Ismail (Universiti Malaysia Perlis)

Dr. Norazharuddin Shah Bin Abdullah (Universiti Sains Malaysia)

Mr. Muhammad Azwadi Sulaiman (Universiti Sains Malaysia) – Editorial Assistant

Mr. Ahmad Zahirani Ahmad Azhar (Universiti Sains Malaysia) – Editorial Assistant

**International Conference on X-Rays & Related Techniques
in Research & Industry 2012 (ICXRI 2012)**

CONFERENCE COMMITTEE MEMBERS

Steering Committee

Chairman : Prof. Dr. Muhd Ambar Yarmo (Universiti Kebangsaan Malaysia)
Deputy Chairman : Prof. Dr. Zainal Ariffin Ahmad (Universiti Sains Malaysia)
Secretary : Dr. Meor Yusoff Meor Sulaiman (Nuclear Malaysia)
Treasurer : Dr. Badrol Ahmad (Tenaga Nasional Berhad Research, TNBR)
Committee Members : Prof. Dr. Fauziah Hj Abd Aziz (Universiti Pertahanan Nasional)
: Associate Prof. Dr Khairul Nizar Ismail (Univ. Malaysia Perlis)

Chairman:

Prof. Dr. Hj. Zainal Ariffin Ahmad

Secretary:

Dr. Norazharuddin Shah Abdullah

Honorary Secretary:

Dr. Meor Yusoff Meor Sulaiman (Nuklear Malaysia)

Treasurer:

Assoc. Prof. Dr. Hasmaliza Mohamad

Honorary Treasurer:

Dr. Badrol Ahmad (TNB Research)

Secretariat:

Dr. Shah Rizal Kasim
Dr. Anasyida Abu Seman @ Hj. Ahmad
Ms. Habsah Haliman
Ms. Zalila Arifin

Sponsorship:

Prof. Dr. Hj. Zainal Ariffin Ahmad
Dr. Sheikh Abdul Rezan
Sheikh Abdul Hamid
Dr. Khatijah Aisha Yaacob

Workshop:

Assoc. Prof. Dr. Sabar Derita Hutagalung
Dr. Julie Juliewatty Mohamed

Transportation:

Dr. Sivakumar Ramakrishnan

Scientific:

Assoc. Prof. Dr. Zainovia Lockman
Assoc. Prof. Dr. Khairunisak Abd. Razak

Dr. Pung Swee Yong

Technical, Publicity and Website:

Assoc. Prof. Dr. Srimala Sreekantan
Mr. Muhammad Azwadi Sulaiman
Mr. Mohd Halim Hassan
Mr. Khairul Nasrin Abas
Mr. Abdul Rashid Jamaludin
Mr. Wan Fahmin Faiz Wan Ali
Mr. Mohd. Fariz Ab, Rahmah
Mr. Mohamad Johari Abu

Food, Exhibition & Competition:

Assoc. Prof. Dr. Zuhailawati Hussain
Dr. Yeoh Fei Yee

Protocol & Hospitality:

Dr. Nurulakmal Mohd Sharif
Mr. Mohd Nazri Idris
Ms. Sharifah Aishah Syed Salim
Ms. Norlailatullaili Mazuki