

**Foreword from
Professor Dr. Mohd. Ambar Yarmo
Chairman of XAPP-MNS**



It is an honour and greatest pleasure for me to welcome all participants and those supporting the International Conference on X-rays and Related Techniques in Research and Industry 2014 (ICXRI 2014).

As we have known, X-ray and related techniques are mainly used for quality control and materials characterization study. Most of the equipment used in these activities has contributed a lot to the advancement of materials science, solid state physics, chemistry, medical and other fields. In recent years, there have been a lot of improvements that includes the introduction of an array of software including instrument control, data interpretation and standard data that may provide quick results with enhanced efficiency.

X-ray Application Society, a chapter of Malaysian Nuclear Society (XAPP-MNS) continuously organized conferences, seminars as well as workshop and lecture to promote the latest development on X-ray and related techniques.

To conclude, I would like to express my sincere and profound gratitude to all members of this conference committee and to everyone who has made this event a success. I wish you all a productive gathering and let us together look forward to a smooth and momentous conference.

Thank you very much.

A handwritten signature in blue ink, which appears to read 'M. Ambar Yarmo'. The signature is fluid and cursive, with a long horizontal stroke extending to the right.

PROFESSOR DR. MOHD. AMBAR YARMO
Chairman of XAPP-MNS

Foreword from
Dr. Hasan Zuhudi Bin Abdullah
Chairman of ICXRI 2014



On behalf of the organizing committee of the International Conference on X-rays and Related Techniques in Research and Industry 2014 (ICXRI 2014), I would like to express our utmost pleasure to given the task of organizing this conference. This conference and workshop is jointly organized by Faculty of Mechanical and Manufacturing Engineering (FKMP), Universiti Tun Hussein Onn Malaysia (UTHM) and X-Ray Application Society Malaysia, a chapter of the Malaysian Nuclear Society (XAPP-MNS).

IXCRI 2014 aims to exchange and share experiences and research findings in all aspects of X-rays and related techniques among academics, researchers and the industry. Not only that, ICXRI 2014 includes a workshop session, which allows participants to gain a hands-on experience in learning fundamental understanding on X-ray applications. Due to this unique conference-workshop combination, I strongly believe that this conference will have a huge impact and will lead to future innovations and strong linkages among the participants. This is reflected in the number of participants, which amounts to a total of nearly 100 papers being presented here in this conference.

I would like to thank, first and foremost, FKMP, UTHM and XAPP for their kind support in organizing ICXRI 2014. I am also grateful to all co-organizers, Universiti Sains Malaysia, Universiti Kebangsaan Malaysia, Universiti Malaysia Perlis, Universiti Pertahanan Nasional Malaysia and Nuklear Malaysia. To all the sponsors, Bruker Malaysia Sdn. Bhd. as the main sponsor, and other co-sponsors, which include DKSH Technology Sdn. Bhd., QC Scientific (M) Sdn. Bhd., Hi-Tech Instruments Sdn. Bhd., Thermo Fisher (Sci-Assist), Crest-Nano Solutions (M) Sdn. Bhd., and Quantum Engineering, thank you for your kind contributions. I would also like to thank all the committee members, who had worked so hard in making this conference a success. I hope all participants will gain valuable knowledge, enhance the research networking, exchange of technical as well as scientific information and ideas, and a wonderful stay in Johor.

A handwritten signature in black ink, appearing to read 'Hasan Zuhudi Bin Abdullah'.

DR. HASAN ZUHUDI BIN ABDULLAH
Chairman of ICXRI 2014

Working Committee of XAPP

Chairman

Prof. Dr. Mohd. Ambar Yarmo (UKM)

Deputy Chairman

Prof. Dr. Hj. Zainal Arifin Ahmad (USM)

Secretary

Dr. Meor Yusoff Meor Sulaiman (Nuclear Malaysia)

Treasurer

Dr. Yusuf Abdullah (Nuclear Malaysia)

Committee Members

Prof. Dr. Fauziah Abdul Aziz (UPNM)

Assoc. Prof. Dr. Khairul Nizar Ismail (UniMAP)

Assoc. Prof. Dr. Hasan Zuhudi Abdullah (UTHM)

Dr. Norazharuddin Shah Abdullah (USM)

Organizing Committee of ICXRI 2014

Patrons

Y. Bhg. Prof. Dato' Dr. Mohd Noh Dalimin
(UTHM Vice Chancellor)
Y. Bhg. Prof. Dr. Mohd Ambar Yarmo (UKM)

Honorary Advisors

Prof. Dr. Zainal Arifin Ahmad (USM)
Prof. Dr. Fauziah Haji Abdul Aziz (UPNM)
Assoc. Prof. Dr. Khairul Nizar Ismail (UniMAP)
Dr. Norazharuddin Shah Abdullah (USM)

Chairman

Dr. Hasan Zuhudi Abdullah

Deputy Chairman

Dr. Nur Azam Badarulzaman

Secretaries

(1) Dr. Rosniza Hussin
(2) Mrs. Zalina Omar

Honorary Secretary

Dr. Meor Yusoff Meor Sulaiman (Nuclear Malaysia)

Treasurers

(1) Dr. Ainun Rahmahwati Ainuddin
(2) Ms. Halimah Jan Fakir

Honorary Treasurer

Dr. Yusuf Abdullah (Nuclear Malaysia)

Registration & Promotion :

Dr. Wan NurAzrina Wan Muhammad
Dr. Zakiah Kamdi
Mr. Mohd Syafiq Kasimon
Mr. Yaacub Zaki Ali

Publication & Seminar Papers :

Dr. Mas Fawzi Mohd Ali
Dr. Hariati Mohd Taib
Dr. Sharifah Adzila Syed Abu Bakar

Sponsorship & Exhibition :

Mr. Azham Azmi
Mr. Mohamed Nasrul Mohd Hatta

Event, Seminar & Protocol :

Assoc. Prof. Dr. Zawati Harun
Dr. Hamimah Abdul Rahman
Ms. Siti Aida Ibrahim

Feast &Accommodation :

Assoc. Prof. Dr. Sufizar Ahmad
Assoc. Prof. Dr. Shahrudin Mahzan

Special Task & Souvenir :

Assoc. Prof. Dr. Maizlinda Izwana Idris
Ms. Azzura Ismail

Sponsors of ICXRI 2014

Bruker Malaysia Sdn. Bhd.

DKSH Technology Sdn. Bhd.

Hi-Tech Instrument Sdn. Bhd.

RGS Corporation Sdn. Bhd.

Crest Nanosolutions

QC Scientific (M) Sdn. Bhd.

Analytical Sci Assist Asia Sdn. Bhd.

Alpha Instruments Supplies & Services Sdn. Bhd.

Quantum Engineering