

# AMMP BULLETIN



Issue : 01

A bimonthly bulletin of Advanced Manufacturing and Material Processing & Zecttron Sdn Bhd

April 2012

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## FOREWORD



The AMMP Bulletin is back after a temporary hiatus with a new look. It is our avid hope that the contents of upcoming issues will be beneficial and adds value to your research capital and knowledge. The Centre of Advanced Manufacturing and Material Processing (AMMP Centre) was initially established as a research group in 2002 and upgraded to a University Research Centre under the Advanced Engineering & Technology (AET) Research Cluster in August 2010. The Centre specializes in research and development on metal machining processes, micro-machining, machine design & control, surface engineering, advance joining, product design and simulation, powder metallurgy, biomaterials and forming processes. AMMP Centre envisions to be one of the leading engineering research centre in Malaysia and a renowned expert group in South-East Asia.

Director,

**Prof Dr Mohd Hamdi Abd Shukor**

## ACHIEVEMENTS

### ⇒ Awards won:

- \* Silver medal winner, Portable Smart Optimum Quantity Lubrication (PSOQL) in Linear Guide Ways for more precise CNC Machines, Malaysian Technology Expo (MTE) 2012: 16-18 February, PWTC, Kuala Lumpur

### ⇒ Grant Obtained

- \* CRDF on 23rd March 2012 for RM 500k in relation to commercialization of CNC Lathe Machine for Education by Zecttron
- \* FRGS (Dr Farazila Yusof, Dr Noor Azizi & Dr Tan Chin Joo)

### ⇒ Academic Journals

- \* Ahmed A. D. Sarhan, M. Sayuti, M. Hamdi "Reduction of power and lubricant oil consumption in milling process using a new SiO<sub>2</sub> nanolubrication system", International Journal of Advanced Manufacturing Technology
- \* E. Zalnezhad, Ahmed A. D. Sarhan, M. Hamdi, Optimizing the PVD TiN Thin Film Coating's parameters on Aerospace AL7075-T6 Alloy for Higher Coating Hardness and Adhesion with Better Tribological Properties of the Coating Surface, International Journal of Advanced Manufacturing Technology
- \* E. Zalnezhad, Ahmed A. D. Sarhan, M. Hamdi, Adhesion Predicting of TiN Coating on Aerospace AL7075-T6 Alloy Using Fuzzy Rule Based System International Journal of Precision Engineering and Manufacturing
- \* M. Sayuti, Ahmed A. D. Sarhan, M. Hamdi, "An investigation of optimum SiO<sub>2</sub> nanolubrication parameters in end milling of aerospace Al6061-T6 alloy", International Journal of Advanced Manufacturing Technology
- \* T. Zaharinie, Farazila, M. Hamdi, T. Ariga. A study on interfacial reaction and titanium distribution in brazing sapphire to Inconel 600 using Cu/Ni porous composite, Advanced Materials Research.
- \* Farazila Yusof, Yukio Miyashita, Yoshiharu Mutoh, Mohd Hamdi Abdul Shukor, Effect of anodizing on pulsed Nd:YAG laser joining of polyethylene terephthalate (PET) and aluminium alloy (A5052), J Mater

## CENTRE ACTIVITIES

### VIBRATION ANALYSIS SEMINAR

**28<sup>th</sup> & 29<sup>th</sup> March 2012 at Seminar room, JKRP, Faculty of Engineering** – A two days seminar on Vibration Analysis for was organized by AMMP with the expertise from Sharif University of Tehran, Prof Dr Mohammad Movahhedy. The participants vary from UM postgraduate students, internal academicians, AMMP members, postgraduate students from universities around KL and external academicians. Participants feedback the speaker's organization and talk contents met the target. Overall all of them were satisfied with the seminar and wished for having a longer session. In future, AMMP will hold more useful seminars and workshop to add knowledge for numerous range participants and keep updated with the centre.



Seminar on vibration analysis



Token of appreciation from AMMP

### RESEARCH TALK ON VIBRATION CHATTERS

**30<sup>th</sup> March 2012 at Alumni room, Engineering Tower, Faculty of Engineering** – AMMP CENTRE arranged a research talk by visiting professor, Prof Dr. Movahhedy on Vibration Chatters for free. Dr Sr Ahmed Sarhan arranged the an hour talk for undergraduates and postgraduates with Prof Dr. Movahhedy allowing them to mingle around sharing opinions.



Participants of seminar program

### AMMP CENTRE VISIT TO SENSATA TECHNOLOGIES SDN BHD

**19<sup>th</sup> April 2012 at Sensata Technologies Sdn Bhd** – A visit to manufacturing company in Subang Jaya gave an eye opener on how laser machine is being used in industry. AMMP members had discussion on the application and usage of the laser machine before purchasing a unit for AMMP Centre.



Site visit to Sensata Technologies



Laser machine

## SUMMARY CURRENT RESEARCH



### HYBRID MICROWAVE SINTERING OF ZINC ALUMINIUM ALLOY

Commercial Zinc-Aluminium (Zn-Al) alloys commonly manufactured through traditional process of melting and casting. However, the problems with the casting process in producing mass production parts are associated with segregation, machining and maintaining final tolerance. Therefore, this research aims to produce commercial Zn-Al alloys from powder elements, study its sintering behavior through hybrid microwave sintering method and compared with the performance of conventional sintering. Samples are prepared by hydraulic pressing at compaction loads. In conventional sintering, the heating and cooling rates were set to 50C/min and 30 minutes of holding time.

Researcher;  
Maisarah Lutfi



### Professor Dr Mohammad R. Movahhedy

Director of University Research Office  
PhD, Vancouver, Canada  
MSc, Waterloo, Canada  
BSc, Tehran, Iran  
Mechanical Engineering, Sharif University of Technology, Tehran, Iran.

Research Areas:

Mechanics and dynamics of Machining

Processes, Finite element simulation of large deformation problems, Vibration and Modal Analysis, Computer Aided Tolerancing (Tolerance Analysis and Synthesis)

Members of:

- American Society for Mechanical Engineers (ASME)
- Iranian Society of Mechanical Engineers (ISME)
- Society of Manufacturing Engineers of Iran (SMEI)
- Society for Automotive Engineering (SAE)

Author of more than 40 journal papers and proceeding conferences

## UPCOMING EVENTS

- Fellowship from University of Tehran, Iran, Mr Ghader Faragi (Best Researcher PhD candidate & Best Author of 25 ISI journal, University of Tehran, 2011) —Research Talk on 11th May 2012
- HIR symposium for undergraduates and postgraduates—16th May 2012
- Visiting Prof Tadashi Ariga from Japan—14th May 2012 till 9th June 2012
- Research talk by Prof Tadashi Ariga—25th May 2012
- 23rd International Invention, Innovation & Technology Exhibition (ITEX) 17-19 May 2012
- CNC training by Zecttron Sdn Bhd—14th to 17th May 2012
- EDM training by Zecttron Sdn Bhd—22th to 24th May 2012
- CATIA training by Zecttron Sdn Bhd—26th to 28th May 2012



**Zecttron Sdn. Bhd.**

## SPIN OFF COMPANY—ZECTTRON

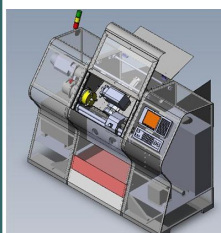
**ZECTTRON Sdn Bhd** is established in 2009 as one of the spin off companies registered under UM Capital umbrella. Zecttron started its business via special concept of knowledge sharing for the future. New technologies which are gained from research is translated and driven forward for commercialization. Besides that, the knowledge sharing process occurs from the training sessions and seminars that are conducted by Zecttron.

### Our Services

- Video Corporate
- Product Development
- Lab prototype to commercial ready prototype consultation
- Research planning and management (K-Chart Talk)
- Technical writing and publishing
- Manufacturing training (CAD/CAM/CAE/EDM/CNC/ AutoCAD/ Catia)

### Our Product

- Automatic Thermocyclic Dipping Machine (ATDM)
- CNC Lathe
- Medical Computer Trolley



CNC Machine

PVD coating



Dental Mould

For further information, please refer to <http://ammpcentre.com> and <http://zecttron.com>