

CENTRE ACTIVITIES

Workshop on Handling Furnace – Operation and Optimization in Safety

4th September 2012 – AMMP Centre organized a Workshop on Handling Furnace – Operation and Optimization in Safety. The participants targeted for this workshop were technicians and students under AMMP Centre. The workshop's objectives are to ensure the safety procedures and practices applied during furnace handling, and to expose the details about furnaces to the participants. The organizer prepared safety guidelines at the workplace and standard operating procedures which provide better understanding to the participants as hands-on were also included. In the morning, all participants were provided with theory classes and in the evening, hands-on were given at Workshop, Department of Engineering Design and Manufacture, Faculty of Engineering where the participants were introduced to all furnaces available in Faculty of Engineering. The workshop was packed with valuable information and more workshop like this will be organized in the future.



Workshop participants

Seminar 'A microstructure approach for topology optimization of structures using finite elements'

29th August 2012 at DK5, Engineering Tower, Faculty of Engineering – AMMP Centre organized free seminar on 'A microstructure approach for topology optimization of structures using finite elements' by Prof. Hasan U. Akay. This talk aims to provide an insight into the development and implementation of the microstructure approach for topology optimization of structures using finite elements. When a systematic optimization method is used during the conceptual design of a structure, major savings may be achieved from the amount of material and weight. It is an interesting topic to be discussed as lots of questions been asked by the participants showing their curiosity during the question and answer session. At the end of session, Prof Ir. Dr Ramesh Singh presented a token of appreciation to our visiting professor.



Participants with Prof Hasan

Seminar on 'How to Conduct High Impact Research and Publishing High Quality ISI Journals'

28th August 2012 at DK5, Engineering Tower, Faculty of Engineering – AMMP Centre organized seminar on 'How to Conduct High Impact Research and Publishing High Quality ISI Journals' by Prof. Hasan U. Akay from Atilim University, Ankara, Turkey. More than 20 participants registered to this seminar, and more attended on the spot. The seminar was packed with valuable information and guidelines as most of the participants gave positive feedback after the seminar. His reputation, experiences and contributions inspired the participants to perform well in producing high impact research. At the end of the seminar, Prof Akay shared his words of wisdom 'Keep on researching, Keep on innovating, Keep on publishing and Best of luck!' to all participants.



Participants with Prof Hasan after seminar ends

SUMMARY CURRENT RESEARCH



Friction Stir Welding of Dissimilar Materials

Friction-stir welding is a refreshing approach to the joining of metals although originally intended for aluminum alloys, the reach of FSW has now extended to a variety of materials including steels and polymers. Metals with low melting temperatures such as aluminum and copper were among the first to be joined by this technique using a steel tool. Regardless of the material, research has shown that joints produced by FSW retain much of the base material strength and have many other advantages over joints produced by traditional welding techniques. It is generally thought that such advantages stem from the lower heat input required by FSW. Studies report that the maximum temperature in the material being welded is usually less than 80% of its melting temperature. Therefore, the welding defects such as large distortion, solidification cracking, porosity, oxidation, and other defects that result from conventional fusion welding are not observed. In this research different properties will be investigated at an optimum level during the joining of dissimilar materials in the Friction Stir Welding as well as the operation will be predicted by three dimensional finite element method.

Researcher;
Raza Moshwan



Friction Stir Welding of Plastic to Metal

The Friction Stir Welding (FSW) method of joining is based on the fact that the metal is subjected to heavy plastic deformation at high temperatures, but lower than the melting point. It works in an innovative solid-state. Currently, FSW technique is applied to adjoining work pieces or parts of metal to metal. Similar materials especially metal to metal were applicable due to this FSW technique because it has availability to found in similar range of melting point. Recently, FSW move forward again to introduce the joining of metal to non-metal in order to fulfill the demands of industry for this moment especially in aerospace field. The invention of this technology was performing the joining of dissimilar materials significantly metal to plastic materials. Regarding to this issue, the further research should be conducted due to the invention of FSW technique to perform the significant experiment of that particular hybrid material of joining process. Hence, there have four objectives to be achieved through this research which are to develop a jig and fixture for Friction Stir Welding (FSW) testing, to determine a feasibility of joining plastic to metal via FSW, evaluate the interface characteristic and to determine the mechanical properties of that particular hybrid material.

Researcher;
Rahmat Firman

VISITING PROF PROFILE



Professor Hassan U. Akay

Provost and Professor of Mechanical Engineering, Atilim University, Ankara, Turkey

Ph.D. Civil Engineering (Specialty in Computational Mechanics): The University of Texas, Austin, Texas, 1974

M.S. Civil Engineering (Specialty in Computational Mechanics): The University of Texas, Austin, Texas, 1969

B.S., Civil Engineering: Middle East Technical University, Ankara, Turkey, 1967

- Research Areas: Computational Fluid & Solid Dynamics , Computational Solid Dynamics , Parallel Computing , Finite Element and Finite Volume Methods , Solid fluid Interactions , Fatigue and Creep Modeling, Electronic Package Reliability, Multi scale Computations, Kinetic Monte Carlo Simulations
- Director's Award for Distinguished Mentor, Center for Research and Learning, IUPUI, 2007 ,
- Fellow, American Society of Mechanical Engineers (ASME), 2004 Present and Chancellor's Professor of Mechanical Engineering, IUPUI, 2003 Present
- Author of over 150 publications
- Visit to AMMP in early of September 2012



Prof. Dr Vijay Gupta

Professor, Department of Mechanical and Aerospace Engineering, Department of Materials Science and Engineering, University of California, Los Angeles

PhD Mechanical Engineering: Massachusetts Institute Of Technology, Cambridge, Massachusetts, 1989

M.S. Civil Engineering: Massachusetts Institute Of Technology, Cambridge, Massachusetts, 1987

B. of Technology Civil Engineering: Indian Institute Of Technology, Bombay, India, 1985.

- Expertise in the failure, fracture, and stability of engineering materials/ structures composed of polymers, rubbers, glass, ceramics, and newer types of composite materials under pressure, static and dynamic loadings
- Patents being used in industry technology.
- Chaired international symposia
- 150 over invited presentations/ conferences
- Author of 60 over publications and book chapters
- Visit to AMMP in early of September 2012.

UPCOMING EVENTS

- Discussion with Phd student topic "Effect Of Introducing Porous Metal And Powdered Metal On The Mechanical Properties Of Pb-free Solders" by Prof Ariga
- Public Talk on "Interactive Discussion/Meeting with Editor Vacuum Journal: Publishing in a High Impact Journal" by Visiting Professor, Prof Wasa from Japan
- Research discussion with Phd student under topic "Friction Stir Welding of Dissimilar Materials" by Prof Ariga
- Collaboration visit by Dr. Abreeza Noorlina Abdul Manap from Uniten in November
- Visit by Professor Suzumura Akio and Assoc Professor Yamazaki Takashi from Tokyo, Institute of Technology
- Second visit by Visiting Professor from IUST Iran, Professor Majid Reza Ayatollahi



Zecttron Sdn. Bhd.

ZECTTRON Sdn Bhd

24 September 2012- Zecttron Sdn Bhd is moving to a new office at Taman Perindustriaan OUG, Kuala Lumpur in order to get more space for commercial purpose. By this Zecttron is hoping to bring more success story to University of Malaya.

New Address: No 18, Jalan 4/152, Taman Perindustrian OUG, 58200 Kuala Lumpur, Tel: 03-7772 8772

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