Welcome to second newsletter of the Nihon Superior Centre for the Manufacture of Electronic Materials. The Newsletter will now be published on the first Monday of each month.

Assoc Prof Nogita and Mr Guang Zeng will be travelling to the TMS Conference, (San Antonio, USA, 2-7 March) to present the significant findings of their research.

Assoc Prof Nogita’s has the honour of being an ‘Invited Speaker’ and will present the NS CMEM research into the Characteristics of beta/alpha transformations in high purity tin.

Mr Keith Sweatman, representing Nihon Superior Japan and the NS CMEM will deliver a presentation entitled: Modified Hypereutectic Sn-Cu Pb-free Solder for High Temperature Applications. This presentation is based on an on-going collaborative research project between Nihon Superior Japan and the NS CMEM on the Sn100C7A alloy.

The members of the NS CMEM travelling to the USA will also participate in the 9th TMS Lead Free solder and Interconnect Technology Workshop on the 3rd of March. This workshop is sponsored by Nihon Superior Japan.

Also attending the conference will be Mr Takatoshi Nishimura representing Nihon Superior Japan; and Dr Christopher Gourlay and Dr Sergey Belyakov of Imperial College London.

This will facilitate the opportunity for those present to have many informal but wide ranging discussions on the research being undertaken at each centre.

THANK YOU

The NS CMEM is very grateful for the significant support provided by Nihon Superior Japan that has enabled our members to travel to the TMS conference.

Research Projects

Summer Research Projects

All three summer research projects have concluded and the students, Mr Chin-Shun (Johnson) Chu, Mr Xiaoxiang Yun and Mr Benjamin Kefford have submitted their respective reports.

Sn-Cu-Ni Phase Diagram

Mr Chin-Shun (Johnson) Chu, (Summer Research Project) under the supervision of Dr Hector Henao Zapata determined that most of the Sn-Cu-Ni phase diagrams as reported in the literature had inaccuracies in the Sn rich corner.

In order to make predictions of phases, kinetic and thermodynamic behaviour of designed alloys, in this Sn rich corner, it is critical to have an accurate phase diagram.

Hence, Johnson undertook a series of preliminary experiments to test the feasibility of measuring phase equilibria using a protocol of isothermal holding, rapid quenching and quantitative analysis of the quenched phases using electron probe micro analysis (EPMA).

Due to the precise temperature control required for their experiments, there was a significant lead time to modify and fully commission a furnace with data logging capability. The series of experiments that Johnson completed indicated that further modifications to the furnace and experimental protocols are required. However, this will be the starting point for his final year undergraduate thesis.
THANK YOU

A big thank you to Xiaoxiang, Chin-shun and Ben for their hard work and contributions to the research programme at the NS CMEM

Grant Applications

Assoc Prof Nogita has submitted his application for an ARC Future Fellowship and the application for experimental work at the Australian Synchrotron – Powder diffraction beam line (closing date 22/02/13).

Assoc Prof Nogita also submitted the ARC Discovery grant in lieu of Dr Hector Henao Zapata due to stringent eligibility criteria.

Dr Jerome Wu and Mr Dekui Mu are in the process of completing their Discovery Early Career Researcher Award grant applications. The external closing date for these applications is the 27/03/2013.

Dr Stuart McDonald is providing on-going and invaluable assistance to the writing of all of these grant applications.

WHY APPLY FOR GRANTS?

The Australian Research Council (ARC) is an Australian Government statutory body, which awards merit based monetary grants to research groups and research academics in Australia.

The grants are designed to support both fundamental and applied research activity.

It is important for the NS CMEM researchers to apply for as many of these grants for which they are eligible, as each successful grant application will provide additional funds for the NS CMEM. The additional funds can then be used to further the research capabilities of the NS CMEM.

Publications

Congratulations Dr Jerome Wu for his publication in Scripta Materialia entitled Determination of the minimum Ni concentration to prevent the η to η⁺⁺polymorphic transformation of stoichiometric Cu₆Sn₅.

Assoc Prof Nogita completed writing his proceedings for ICEP 2013 entitled Crack Formation and Propagation Mechanisms in Interfacial Cu₆Sn₅.

Dr Stuart McDonald is revising a paper entitled Real time synchrotron X-ray observations of solidification in hypoeutectic Al-Si alloys.

Dr McDonald is also completing a parallel paper entitled Real-Time Observation of Solidification in a Sn-10wt%Cu Alloy.
Assoc Prof Nogita, Dr Jerome Wu and Mr Guang Zeng gave their TMS presentation to the Division of Materials Engineering at UQ.

Assoc Prof Nogita and Dr Stuart McDonald have been helping new PhD candidate Mohid Arif Anuar Mohd Salleh transition from Malaysia to Australia. Arif will commence his PhD candidature in the coming weeks.
AWAY FROM UQ

Assoc Prof Nogita, Dr Jerome Wu and Mr Guang Zeng will be in the USA for the TMS conference. They will be away from UQ from the 2nd to the 10th of March.

Assoc Prof Nogita will travel to Sydney for key note presentation at Japan External Trade Office (JETRO) and Queensland Government Seminar on 14th of March.

Assoc Prof Nogita will travel to Malaysia for key note presentation at ICoSM2013 and UniMAP visit from 24th to 28th March.

Mr Daniel Graham will be travelling to San Francisco, California, the USA to visit Retech Systems from 6th to the 12th of March. Daniel will be trained on the use of the plasma arc melting furnace, which will be commissioned in the Advanced Engineering Building later this year.