

Invited Lecture at IJCAET&ISAMPE 2017, Bali, Indonesia

INVITED SPEAKER: **Niro NAGAI (University of Fukui, Japan), Prof., Dr.Eng.**

TITLE: Introduction of Japanese Boiling Research Activities and Research Summary on Wetting Initiation Condition during Film Boiling near MHF Point

ABSTRACT

Firstly, research activities on boiling in Japan are briefly introduced. Boiling phenomena and its heat transfer characteristics have been important roles in many industries, such as vapor generation in boiler or HVAC, cooling technologies in material processing, heat pipe applications and so on. In Japanese Society of Mechanical Engineers (JSME), there have been a research committee on phase change, mainly focusing on boiling phenomena, and will publish a technical book on boiling written in English from Elsevier. Also recently in Iron and Steel Institute of Japan (ISIJ), a research project started on boiling cooling technology for heat treatment of steel material.

Secondly, one of research topics of the speaker related to boiling is briefly summarized. For cooling of high-temperature material, there have been an essential and classical problem, i.e. what is the wetting initiation condition during film boiling. If localized wetting started, the boiling mode changes from film boiling to transition boiling, which leads to drastic change of cooling speed. As to this problem, the speaker have tried visualization experiments when and where the localized wetting initiated.