

PREFACE: CRITICAL HEAT FLUX FOR BOILING, CHFIC2018

This special issue is an outcome of the deliberations from the Critical Heat Flux and Multiphase Flow conference held during December 22–23, 2018. The conference was a spontaneous outcome of a Board of Research in Nuclear Sciences collaborative project with Professor Pradyumna Ghosh, Department of Mechanical Engineering, IIT BHU, Varanasi, as Principal Investigator, and Dr. Arun Kumar Nayak, Outstanding Scientist, BARC as Principal Collaborator, where we have observed the important aspect of delay in departure from nucleate boiling for diluted nanofluids in the case of flow boiling in much lower heat flux than critical heat flux (CHF). Hence, an obvious inquiry pops up—a physics-based model/explanation of CHF—which is the call of the day. In the past few decades, much research has been conducted with the aim to model CHF from first principles. The present mechanistic models are still in the development process to attain a level of maturity in order to substitute the expensive experimentations. In view of these challenges, the theme of the conference was to introduce state-of-the-art modeling and experimentation for CHF and multiphase flow, and to identify the avenues for future developments in this area. The conference included keynote talks by experts and presentations on those topics, and was the joint venture of the Department of Mechanical Engineering, IIT (BHU), Varanasi and IIT (Bombay), with the close association of BARC and the entire DAE fraternity. The technical program was much enriched with two plenary and sixteen keynote talks by eminent speakers across the globe. Around 100 participants were present in the conference venue at IIT (BHU). Prof. Pradyumna Ghosh and Prof. Atul Shrivastava (Department of Mechanical Engineering, IIT, Bombay), along with Dr. Arun Kumar Nayak, were the key persons of the conference.

Guest Editor:

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