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CFD IN ENGINEERING AND TECHNOLOGY OF NUCLEAR INSTALLATIONS

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ABSTRACT

This Minisymposium announcement is a call for papers from experts in a number of key issues related to Nuclear Engineering and Technology, such as fundamental studies, design and plant engineering, radiological and nuclear safety, environmental aspects and so forth, which use CFD as a tool to get significant results. CFD papers dealing with innovative developments or methods in CFD, studies on separate effects or particular aspects of thermal-hydraulics in nuclear installations, coupled codes applications and verification and validation studies are among, but not limited to, the expected contributions. Nevertheless, in the analysis of the nuclear safety of complex nuclear systems, almost one-dimensional system thermal-hydraulics (TH) codes will be used perhaps for a couple of decades from now. CFD tools are accepted at present to be a support of such analyses and they are used coupled to systems codes or as separate analysis tools for isolated components with boundary conditions sometimes obtained from TH systems codes. The restricted acceptance of "pure" CFD codes is due to many reasons but three of them are relevant, namely: (a) the apparent lack of CFD grade experimental data; (b) the need for a complete verification and validation and the uncertainty quantification for the codes currently available and, (c) the present impossibility for modeling a full plant system. Due to this, results coming from innovative use of systems TH codes are also welcome. Submission of papers showing comparisons between CFD and TH system codes results and the discussion on pros and cons of both approximations in a common context are encouraged.

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