



# Editorial: Safety Analysis of Nuclear Reactor Thermal-Hydraulics

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## Editorial on the Research Topic

### Safety Analysis of Nuclear Reactor Thermal-Hydraulics

A large number of nuclear power plants are under construction in Asia (McDonald, 2008). Thereby, the demand for research on reactor design and thermal hydraulics is of high priority (Sovacool, 2010). Prof. Liangming Pan from Chongqing University holds the 9th China–Korea Workshop on Nuclear Reactor Thermal–Hydraulic in 2019. There are many high-quality conference papers submitted. To select and publish the top articles in the conferences, Prof. Pan leads the Research Topic “Safety Analysis of Nuclear Reactor Thermal Hydraulics” in the journal *Frontiers in Energy Research*. Finally, 11 articles are collected, covering the experimental and numerical research, from light water to liquid metal and supercritical coolant.

There are several articles about the safety of light water reactors. Kim J. et al. contribute the “integral effect test on top-spot break scenario with 4 inches cold leg break LOCA in ATLAS Facility.” Kim H. T. et al. present their “Simulation of a Station Blackout Accident for the SMART using the CINEMA Code.” Du et al. write the “review of regime maps of steam submerged direct contact condensation.”

Meanwhile, there are several pieces of research about the bubble and critical heat flux. Yu et al. work on the “experimental study of bubbly-slug flow transition criteria in a vertical circular tube by using WMS.” Liu et al. publish the “assessment of a theoretical model to predicting forced convective critical heat flux in rod bundles.” Park and Chung contribute the “simulation of critical heat flux phenomenon using a non-heating hydrogen evolving system.”

There is also research on advanced reactors. Xiang et al. show their “Study on natural circulation heat transfer characteristics of different liquid metals based on factor analysis.” Lv et al. present “A Critical Flow Model For Supercritical Pressures.”

Finally, this Research Topic also involves work on small modular reactors and microreactors. For example, Zhang et al. publish “Thermoelectric Conversion Performance of Combined Thermoions System for Space Nuclear Power Supply.” Yuan et al. show the work about “Numerical Simulation of Flow Boiling in Small Channel of Plate OTSG.” Wang et al. contributes to the “Rod Ejection and Drop Accident Analysis of Aqueous Homogeneous Solution Reactor.”

After almost 1-year revision and update, this Research Topic finally selected those 11 articles and published them in the journal *Frontiers in Energy Research*.

## OPEN ACCESS

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It allows showing those high-quality work to the public who do not have a chance to attend this meeting. The journal *Frontiers in Energy Research* will permit publishing more articles from international conferences. All the editors are open to contact for further information.

## REFERENCES

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**Conflict of Interest:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

## AUTHOR CONTRIBUTIONS

LP is the leading author. JW is the contacting author. YH and K-YC are senior people. All authors contributed to the article and approved the submitted version.

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