nks
Nordic nuclear safety research

1. Personal information

Name			
Xicheng Wang			
Company	**Country**	**Email address**	**Telephone**
Royal Institue of Technology – KTH	Sweden	xicheng@kth.se	+46 723656478

2. Describe your relevant background, experiences, skills and expertises. What can you bring to a NKS project?

Please give a short and general description here (max 30 lines)

7 years of experience in nuclear thermal-hydraulic, severe accident phenomena and 3 years of experience in machine learning.

My research is driven by a fundamental question in nuclear power safety: how can we better resolve and predict safety-realted phenomena to reduce uncertainties in safety assessment and ensure that risks remain as low as reasonably achievable?

To address this question, I rely on three pillars:

(i) I use high-resolution Computational Fluid Dynamics (CFD) and low-resolution system-level codes to analyze the safety-related thermal-hydraulic behavior, supported by systematic sensitivity analysis and uncertainty quantification.

(ii) I design Integral Effects Tests (IETs) to investigate the interaction between multiple phenomena and Separate Effects Tests (SETs) to study individual phenomena.

(iii) I apply machine learning techniques to uncover hidden patterns within the dataset generated by both numerical and experimental studies.

3. Describe your specific interests and wishes regarding collaboration. How would you like to be involved in a NKS project? Which types of projects could have your interest?

Please give a short and general description here (max 30 lines)

- Development of modeling approaches for analyzing safety-related thermal-hydraulic phenomena in current light water reactors and future advanced reactor systems.
- Reliability analysis of passive safety systems for both light water and liquid metal-cooled reactors.
- Analytical support for experimental investigations of thermal-hydraulic and severe accident phenomena.
- Application of machine learning methods in nuclear engineering for enhanced data utilization and predictive modeling.