CCP-NTH
Collaborative Computational Project for Nuclear Thermal Hydraulics

UKFN Special Interest Group in Nuclear Thermal Hydraulics (SIG NTH) and
Collaborative Computational Project for Nuclear Thermal Hydraulics (CCP NTH)

**Annual Technical Meeting
and CFD Benchmark Workshop**

13th and 14th June 2024
Hosted by STFC at
The Cosener's House, 15-16 Abbey Cl, Abingdon OX14 3JD, UK
Programme(draft)

Thursday 13th June

12:00 - 12:30   Registration

12:30 - 13:30   Lunch

13:30-14:00   Session 0 – Welcome and overview

13:30 – 13:40   Welcome - **Shuisheng He**, **Wei Wang**

13:40 – 14:00   CCP-NTH update - **Shuisheng He**, The University of Sheffield

14:00 - 15:40   Session 1 – Modelling and simulation

14:00 – 14:20   Numerical simulations of helium-air jets relevant to high-temperature gas-cooled reactor (HTGR) applications - **Jundi He**, The University of Sheffield

14:20 – 14:40   Large Eddy Simulations of conjugate heat transfer in channel flows up to Prandtl number 5 - **Gregory Cartland-Glover**, STFC Daresbury Laboratory

14:40 – 15:00   CFD Modelling of a High Temperature Gas Reactor Core - **Steve Graham**, National Nuclear Laboratory

15:00 – 15:20   On bubble microlayer dynamics in superheated pools of water - **Borja Diaz-Guardamino**, The University of Manchester

15:20 – 15:40   Computational FSI Modelling of Tube Vibrations in Cross Flow - **Tim Craft**, The University of Manchester
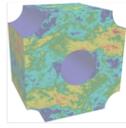
15:40 - 16:00   Coffee Break – Group photo –

16:00 - 17:20   Session 2 – NTH tools development

16:00 – 16:45   [**CHAPSim Talk 1**] Update on the development of CHAPSim2 – **Wei Wang**, STFC Daresbury Laboratory

[**CHAPSim Talk 2**] Implementation of an algebraic interface tracking method in CHAPSim2 for multiphase flow simulations - **Bo Liu**, STFC Daresbury Laboratory

[**CHAPSim Talk 3**] Implementation & Verification of an IBM with Conjugate Heat Transfer for CHAPSim2 - **Kenneth Chinembiri**, The University of Sheffield

[**CHAPSim Talk 4**] Study of pulsating flow using CHAPSim - **Tobi Onasanya**, Liverpool John Moores University

16:45 – 17:20   [**SubChCFD Talk 1**] Development of a coarse-grid methodology (Subchannel CFD) for prismatic HTGR fuel assemblies - **Bo Liu**, STFC Daresbury Laboratory

[**SubChCFD Talk 2**] SubChannel CFD development for the wire-wrapped spacer - **Chenxin Zhang**, The University of Sheffield

[**SubChCFD Talk 3**] Coupling neutronics into SubChCFD (?TBC) - **Bryan Tan**, Imperial College London

17:20 - 18:00   Session 3 – Machine Learning

17:20-17:40   Thermofluids in the data era - **Xu Chu**, University of Exeter

17:40-18:00   Advanced CHF Prediction with Deep Gaussian Processes (GP) Models - **Yu Duan**, Imperial College London

18:30   Dinner at Limoncello Restaurant Abingdon
Address: 13 Ock Street, Abingdon, Oxford, OX14 5AL. Less than 10 mins walking from the conference venue. Pre-dinner reception from 18:30, Dinner at 19:00. Dress code: smart casual.

Friday 14th June

08:30-09:00   Arrival tea & coffee

09:00-10:20   Session 4 – Facilities

09:00-09:20   Frazer-Nash Nuclear Thermal Hydraulics update - **Richard Underhill**, Frazer-Nash Consultancy Ltd

09:20-09:40   Rolls-Royce Submarines Thermal Hydraulic Testing Past, Present and Future - **Phil Hilton**, Rolls-Royce Submarines Ltd

09:40-10:00   The Deployment of Experimental Testing at Rolls-Royce Submarines - **Joshua Hellewell**, Rolls-Royce Submarines Ltd

10:00-10:20   Experimental Investigation of axial 2-phase flow-induced vibrations of a cantileever rod - **Hector Iacovides**, The University of Manchester

10:20-10:40   Coffee Break

10:40-11:40   Session 5 – Panel discussion

Facilitators: Michael Bluck
Panel members: Ryan Tunstall, Chris Sigournay, Hector Iacovides, Chris Harrington (?TBC)
Panel discussion topics: Nuclear thermal hydraulics facilities, skills and tools
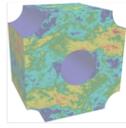
11.40-12.30   Session 6 – Round table discussion

Discussion topics: UK NTH community and CCP-NTH: Future development and funding

12:30   Lunch

13:30   Departure
For those not registered for the afternoon CFD benchmark workshop

CFD Benchmark Workshop

13:30 – 14:00   Overview, **Jundi He**, The University of Sheffield

14:00 – 14:15   **Wei Wang / Bo Liu**, STFC Daresbury Laboratory

14:15 – 14:30   **Chris Sigournay**, EDF Energy Nuclear Services

14:30 – 14:45   **Ewan Harris**, EDF Energy R&D UK

14:45 – 15:00   **Constantinos Katsamis**, EDF Energy R&D UK

15:15 – 15:30   **Oliver Lim,** Frazer-Nash Consultancy Ltd

15:30 – 16:00   Summary & closing remarks

16:00   Departure

Further information:

Notes:

- **Enquiries**: Wei Wang (wei.wang@stfc.ac.uk), Shuisheng He (s.he@sheffield.ac.uk)
- **Speakers**: Most slots for the conference are 20 min. Please speak for 15 min and leave 5 min for questions and changeover.
- Overnight **accommodations** are at The Cosener's House if registered.