Invited Lecture

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User Meeting

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CFD Usage at SEPTEN

Nuclear Power Plant

Design

Safety

0D-2D
Global scale

3D
Local scale

CFD

System codes are inadequate to simulate complex 3D flows

REQUIREMENTS
- High level of Expertise
- Confidence in CFD
- Robust CFD prediction

Engineering & Design Department

Safety Demonstration

Challenges

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Challenges for Industrial Use

CFD Verification & Validation
- A continuous **code improvement process** in place (CFD with EXPERIMENTS)
- An automatic tool for the code releases numerical verification
- An up-to-date organization for **Code_Saturne V&V activities** and documentation
- A global methodical approach based on PIRT, V&V and UQ

CFD Uncertainty Quantification
- Methods currently being developed for UQ
- Share this ambitious goal with all industrial partners in the domain

High Performance Computing (HPC)
- Access is guaranteed to ensure capability to carry out a sufficient number of sensitivity calculations to achieve **robust simulation results**
Efficiently share experiences

- **Highlighting the code’s strengths and weaknesses**
- Contributing to added-value in comparison with commercial codes
- Sharing different (and potentially best) practices from those outside the nuclear domain

Move forward together

- Strengthen relationship between users/developers
- **Development program is enlightened by user’s needs**
- Share experience with users of other codes (to enhance knowledge and objectivity)
- Show the new developments of the code
- Improve the code to **promote the use of CFD**

Maintain/improve a high level of CFD industrial expertise

- Opportunity for young engineers and researchers to present their activities
- Facilitate/enlarge contacts for *Code_Saturne* community
THANK YOU FOR LISTENING

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