Computational Fluid Dynamics (CFD)
Team supporting CERN

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Seminar Content

• Introduction (5’)
• R. Shukla - Case study #1 – Flow field and heat transfer (20’)
• I. Melero - Case study #2 – Temperature and CO₂ concentration (20’)
• Q&A session (20’)

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CFD – what is it?

Solution of fluid dynamics problems by means of numerical simulations

Pre-processing   Solving   Post-processing
CFD team at CERN

Created in 2003 in EN/CV

2-4 People – fellows and PhD/technical students

4-8 projects/year

The Team

The Tools

CFD team

ANSYS FLUENT

FLOWNEX DualSPHysics

The Hardware

HPC cluster
2 partitions

4 TechPCs

300+ nodes - 20 core/node
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CFD team

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CFD Team and You

- Perform CFD studies for injector and LHC machines, experiments, detectors…
- Simplification, fast build of correct model and results interpretation
- Experience and competence centre
- Weekly meeting to share progress and solve technical challenges
- Problem sharing
- Support CERN
- Knowledge sharing and training
- Archive case/mesh files and project reports of all past CFD simulations

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Thank you for your attention…

…Q&A at the end