

Five Days Workshop on Parallel Finite Element Computing using ParMoon

Oct 14 - 18, 2019, Department of Computational and Data Sciences, IISc, Bangalore

OBJECTIVES: The purpose of this workshop is to provide an introduction to finite element method, parallel finite element data structure and its implementation in **ParMoon** (Parallel Mathematics and object oriented Numerics), an open source parallel finite element package. Further, the implementation of parallel (MPI/OpenMPI) geometric multigrid solver, parallel finite element solution of scalar and incompressible Navier-Stokes equations in two- and three-dimensions using ParMoon will also be a part of this workshop.

FOCUSED TOPICS:

Introduction to finite element method, parallel computer architectures, Message Passing Interface (MPI) and OpenMPI, hybrid (MPI/OpenMPI) concepts. Basics of finite element methods, hierarchical mesh partition/decomposition, scalable solvers/smothers (Jacobi, Gauss-Seidel, SOR, Vanka-type) and parallel geometric multigrid solver/preconditioner, parallel visualization using ParaView/VTK.

Learning by Doing:

- Lectures will be in the forenoon session, whereas hands-on ParMoon training classes will be in the afternoon session
- Participants are expected to bring their own laptop with linux/Mac operating system and GCC or Intel C/C++ compilers

Eligibility / Selection:

- Participant must have completed BE/BTech in Engg. or M.Sc/MS in Science/Engg.
- Participant must have basic knowledge on numerical methods, C/C++ programming and parallel architectures
- Total number of participants is limited to 30
- Preference will be given to participants from DRDO labs, in particular, from Naval Labs and to PhD students, Postdocs and young researchers from academic and research institutes

Important Dates:

Last date for registration: 06.09.2019
Intimation of Selection: 09.09.2019
Beginning of workshop: 14.10.2019

Logistics:

- Working lunch and dinner will be provided
- Limited rooms are available in our guest house
- Free accommodation will be provided to participants from Naval Research Labs

Workshop Organizer:

- Prof. Sashikumaar Ganesan (IISc, Bangalore)

Registration Fee:

- Free (Academic/DRDO participants)
- 10,000 INR (Non-Academic Participants)

Contact:

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