

## **Prof. V. Sriram**

Dr. V. Sriram is currently working as professor at the Department of Ocean Engineering, IIT Madras. He received his Direct PhD after bachelors from IIT Madras. His research work focuses on computational and experimental hydrodynamics. He has developed state-of-the-art numerical models applied to ocean



engineering. He received the Newton International Fellowship (from the Royal Society, UK) in 2009, Alexander Von Humboldt Fellowship (from AvH foundation, Germany) in 2011, DST INSPIRE Faculty award (from DST), RJ Garde Research award (from Indian Society of Hydraulics), ISOPE Conference best session organiser award 2021 and DFG- Mercator Fellowship, 2023 for his contributions in the field. He was a visiting researcher at City University of London and visiting professor at Leibniz Universität Hannover, Germany. He has published more than 100 papers in international journals and conferences. He has guided 8 PhD students and currently guiding 10 more PhD students. He is presently serving as an Associate Editor in IJOPE.

### **Keynote Presentation 5**

#### **Hybrid Modelling - Past, Present and Future**

Numerical modelling plays an important role in understanding the complex wave structure interaction (WSI) phenomenon and assisting in the design of marine structures. A typical feature of numerical modelling in WSI problems is simultaneously considering large-scale wave propagations and small-scale physics in the near field of the structures, such as nonlinear wave-elastic structure interactions, breaking wave impact, aeration and turbulence. This brings challenges for the single-model approach, e.g. the fully or weakly nonlinear potential theory and the Navier-Stokes solvers, which is either over-simplified for small-scale physics or too time-consuming for large-scale wave propagation. Over the last decade, after the successful implementation of strong coupling between the 2D FNPT – Particle based NS solver. It has been developed for 3D and various applications are attempted. In this talk, the past implementation, the learnings and present state of the art in coupling will be discussed. Both domain based approach and functional decomposition approaches will be discussed. The developments in particle method based MLPG, IITM-RANS3D and Boussinesq model coupling will be discussed. An overview about the future perspective such as coupling the numerical model and experimental facility will be provided.