

**CENTER FOR FLUID MECHANICS
AND
THE FLUIDS, THERMAL AND CHEMICAL PROCESSES GROUP
OF
THE DIVISION OF ENGINEERING
SEMINAR SERIES**

**Professor Frederick Stern
IIHR-Hydroscience and Engineering
The University of Iowa
Iowa City, IA**

**Paradigm for Development Simulation Based Design for Ship
Hydrodynamics**

SBD for ship hydrodynamics merges traditional fields of resistance and propulsion, seakeeping, and maneuvering, which with inclusion of environmental effects will revolutionize the design process and offers possibility for innovative out-of-the box concepts for future ships to meet the challenges of the 21st century. Development of SBD involves a new paradigm for hydrodynamics research in which CFD, EFD, and UA investigations are conducted simultaneously for benchmark geometries and conditions using an integrated approach along with optimization methods, all of which serve as an internal engine guaranteeing simulation fidelity. IIHR research in major components of SBD for ship hydrodynamics is described through an overview of the status of their application to traditional fields and future directions.

**TUESDAY, MAY 8, 2007
Barus & Holley, Room 190
3:00pm**