



UNIVERSITÀ DEGLI STUDI DI GENOVA

**SCUOLA DI DOTTORATO DI SCIENZE E TECNOLOGIA PER
L'INGEGNERIA**

Dottorato in Fluidodinamica e Processi dell'Ingegneria Ambientale

AVVISO DI SEMINARIO

“Stochastic Numerical Optimization Methods for Ship Hydrodynamic Design”

Dr. Emilio Fortunato Campana
Direttore
INSEAN-CNR, Roma

Giovedì 9 maggio, 2013 – ore 14.00
Scuola Politecnica
Aula G3A, Opera Pia

The seminar highlights a few recent contributions in the field of deterministic and stochastic design optimization, assuming that the objective(s) function(s) are computational expensive since high fidelity analysis tools are used for the evaluation (PDE constrained optimization). The scope is the design optimization of ship moving in a real operative scenario. The key elements to attack this computational challenging task are the use of (i) metamodels (surrogate of the high-fidelity tool), (ii) systematic variable-fidelity approaches linked with trust region methods, (iii) Reduce Order Models (ROM) such as proper orthogonal decompositions (or Karhunen-Loève approximation) to generate cost-efficient representations of large-scale design spaces, truncating basis functions with small significance to the solution. The seminar will also try to give a brief overview of numerical and experimental techniques developed at INSEAN-CNR in the context of Sustainable Maritime Transport.