Contribution ID: **125** Type: **Paper**

Numerical Predictions of a Model Scale Propeller in Uniform and Oblique Flow

Friday, June 22, 2018 3:15 PM (15 minutes)

In modern market scenarios, the competitiveness of an enterprise is determined, beyond the quality of the product, by its time to market. Thus, nowadays, the computational fluid dynamics (CFD) technologies are extensively used for design purposes allowing the - in general - more expensive and time consuming experimental tests to be performed only at the final stages of the project.

Recognizing the added value of reliable CFD simulations, the University of Trieste (Italy) and the Slovenian private company Kolektor-Turboinštitut of Ljubljana (Slovenia), joined in the EU project ACCUSIM (Accurate Simulations in Hydro-Machinery and Marine Propellers – EU FP7-PEOPLE-2013-IAPP) in order to develop reliable, high fidelity methods for the accurate predictions, and optimization, of the performances of hydromachinery and marine propellers.

In this paper, selected results, obtained by the synergic collaboration between the two partners, are presented for the propeller case. In particular, the simulations carried out for the PPTC model propeller, recognized as an international test case, are discussed. Numerical results are presented for the propeller working in both uniform as well as non-uniform inflow conditions.
The predicted propeller performances and characteristic local flow details are compared with the available experimental data.

Primary author: Dr MORGUT, Mitja (Università degli Studi di Trieste)

Co-authors: Dr ŠKERLAVAJ, Aljaž (Kolektor-Turboinštitut); JOŠT, Dragica (Kolektor-Turboinštitut); Prof. NOBILE, Enrico (Università degli Studi di Trieste); Prof. CONTENTO, Giorgio (Università degli Studi di Trieste); Dr PIGAZZINI, Riccardo (Università degli Studi di Trieste); Dr MARTINI, Simone (Università degli Studi di Trieste); Dr PUZZER, Thomas (Università degli Studi di Trieste)

Presenter: Dr MORGUT, Mitja (Università degli Studi di Trieste)

Session Classification: Hydrodynamics

Track Classification: Numerical & experimental hydrodynamics