

MESA

Maritime Europe Strategy Action

TTG 1 – Energy Efficiency Workshop,
Sub Area 1.2 - Propulsion
Brüssel, 5 March 2014

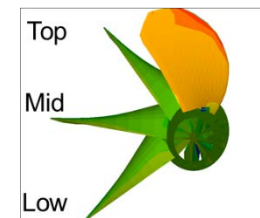
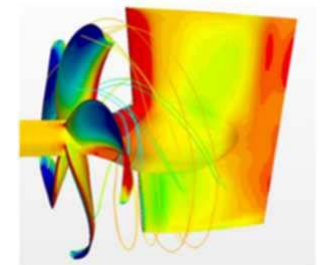
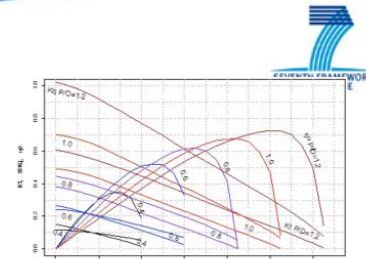
MESA – SHIP PROPULSION

Propulsion – Structure Decomposition in MESA

- (conventional) Screw Propellers,
- Waterjets,
- Unconventional Propellers and other hydrodynamic propulsion devices
- Aerodynamic propulsion
- ...
- Propulsion technologies and (required) prediction methods (computational, experimental)

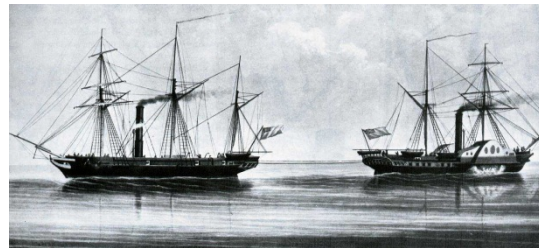
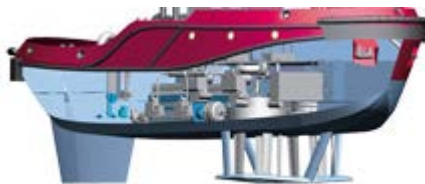
Propellers (conventional)

2.1	Screw Propellers
2.1.1	Design and Prediction methods
2.1.1.1	Propeller Series
2.1.1.2	Propeller panel codes
2.1.1.3	RANS methods
2.1.2	Propeller applications and optimisations
2.1.3	Unconventional (Screw) Propellers
	Kappel
	PODs
	Large area propeller (behind ship)
2.1.4	Propulsion Improvement Devices
	Pre-, post-, fins, ducts,
2.1.5	Materials



Unconventional Propellers and other hydrodynamic propulsion devices

2.3	Alternative hydro propulsion systems
2.3.1	magnetically geared propulsion motor
2.3.2	Voith Schneider Propellers
2.3.3	Paddle Wheels
2.3.4	Walvisstart



Aerodynamic propulsion

2.4 Aerodynamic propulsion

2.4.0 Prediction methods

Wind tunnel tests

numerical predictions

VPP

2.4.1 Fixed wing / profile

2.4.1.1 Dyna Rig

2.4.1.2 JAMDA rig

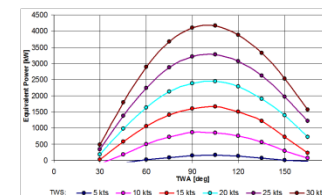
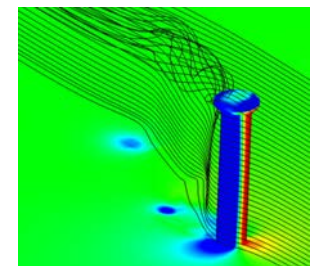
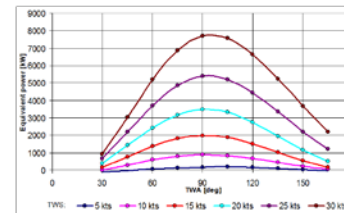
2.4.2 Sails

2.4.2.1 Indosail

2.4.3 Others

2.4.3.1 Skysails

2.4.3.2 Flettner Rotor



Relevant EU Projects

- EFFORTS
- EROCAV,
- KAPRICCIO
- FASTPOD
- OPTIPOD
- STREAMLINE,
- TARGETS,
- GRIP

Catalogue - Spreadsheet

Link: [Spreadsheet](#)

To do:

- Identification of major FP 6/7 projects,
- Short description of contents,
- (details often difficult to obtain, public reports are sometimes not very comprehensive).

Next Steps

- Definition of (technology) gaps: \leq TTG, technology driven.
- Definition of Research needs: \leq Strategy Group, market driven.
- Balancing of needs and gaps – based on assessment of technology potential.

Technology Gaps / Needs (I)

identified in TTG 1.2

- Cavitation research, explaining the basics;
- Is there a need in times of slow steaming?

- Further research in radically new hydrodynamic propulsion concepts such as the Walvisstart, fish propulsion, or similar?

Technology Gaps / Needs (II)

identified in TTG 1.2

- Sustainable propulsion or better propulsion based on sustainable energy will be wind / sails.
- Should there be a European initiative to develop 21st century sail technology?

THANK YOU