



POLITECNICO
MILANO 1863

ASR
DIPARTIMENTO DI
SCIENZE E TECNOLOGIE
AEROSPAZIALI



POLI-Wind

TWEET-IE Grand Opening Event

Prof. Alessandro Croce
Department of Aerospace Science and Technology
Politecnico di Milano

Athens, 24-26 January 2023





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POLI-Wind

Improving NTUA's profile with respect to EU research needs and services to industry

Prof. Alessandro Croce
Department of Aerospace Science and Technology
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POLI-Wind EU Projects



- **INN WIND EU** 'Innovative wind conversion systems (10–20MW) for offshore applications' (EU FP7, 2012–2017).
POLI-Wind activities: lightweight rotor design with active and passive load mitigation.



- **AVATAR** 'AdVanced Aerodynamic Tools for lArge Rotors' (EU FP7, 2013–2017).
POLI-Wind activities: advanced aerodynamics, load alleviation, stability analysis



- **CL-WINDCON** 'Closed Loop Wind Farm Control' (H2020-LCE-2016–2017, 2016–2019).
POLI-Wind activities: demonstration by wind tunnel testing, assessing the benefits of the new control technology



- **FLOAWER** 'MSCA ITN Project | FLOAting Wind Energy network' (MSCA-ITN-2019)
POLI-Wind activities: Horizontal and vertical axis WT aerodynamic modeling and testing, Integrated design and LCOE minimization of horizontal and vertical axis wind turbines

POLI-Wind EU Projects



- **INN WIND EU** Innovative wind turbine for offshore applications' (EU FP7, 2012-2017).
POLI-Wind activities: light



- **AVATAR** 'AdVanced Aerodynamic Tools for Large Rotors' (EU FP7, 2013-2017).
POLI-Wind activities: adv



- **CL-WINDCON** 'Closed Loop Control' (EU FP7, 2017, 2016-2019).
POLI-Wind activities: design and testing of new control technology



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POLI-Wind activities: Hov and LCOE minimization



Twin Wind tunnels for Energy & the Environment
INNOVATIONS - EXCELLENCE

shore applications' (EU FP7, 2012-2017).

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2013-2017).

bility analysis

2017, 2016-2019).

using the benefits of the new control

A-ITN-2019)

modeling and testing, Integrated design

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POLI-Wind EU Projects



-2017).

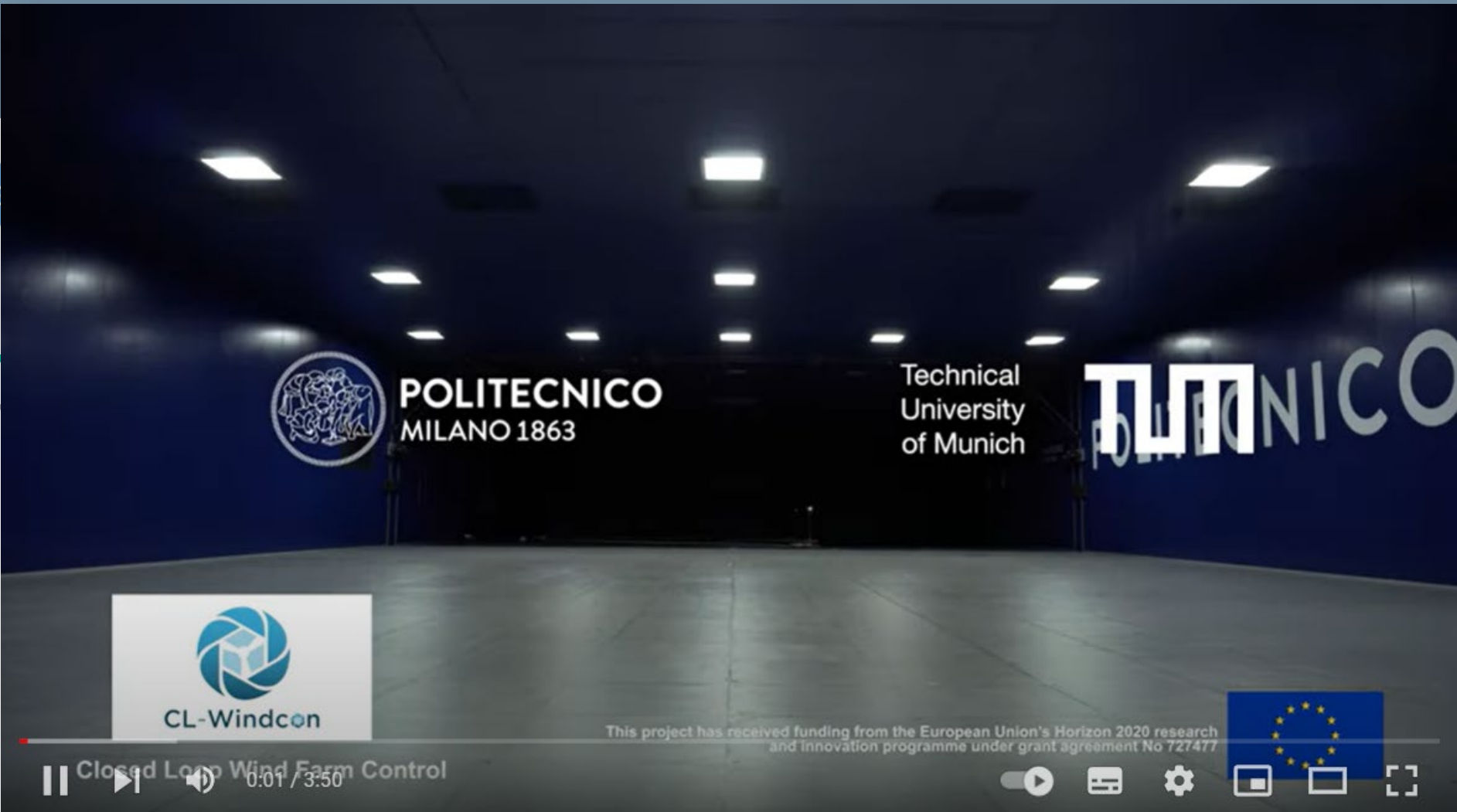
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design

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POLI-Wind EU Projects



2012-2017).

control

<https://youtu.be/pyl9YOIkmgQ>

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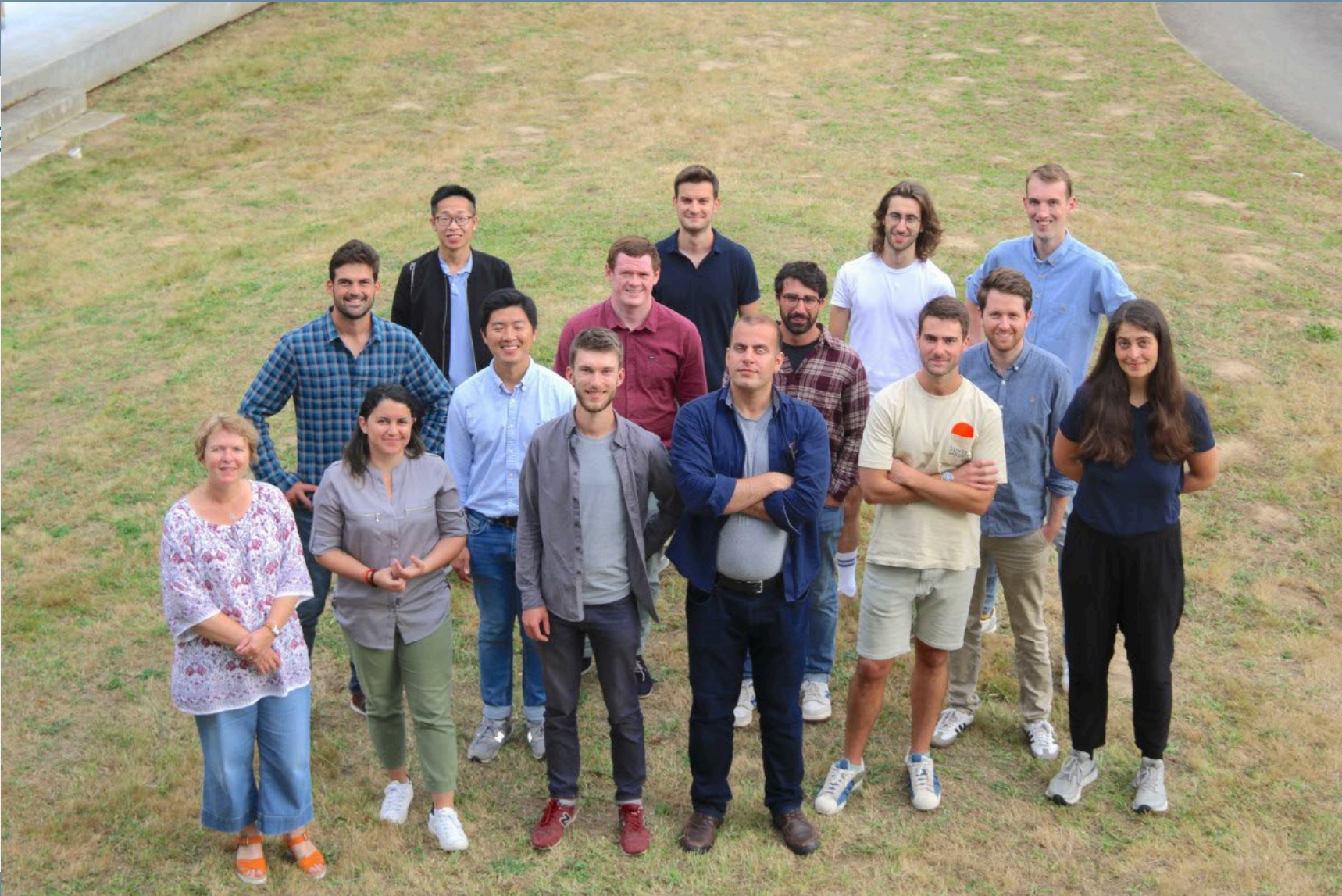


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P7, 2012–2017).

new control

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Prof. Alessandro Cro



2012-2017).

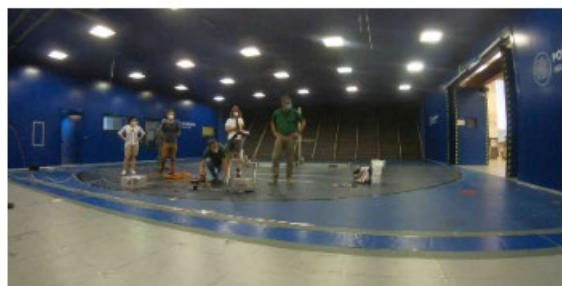
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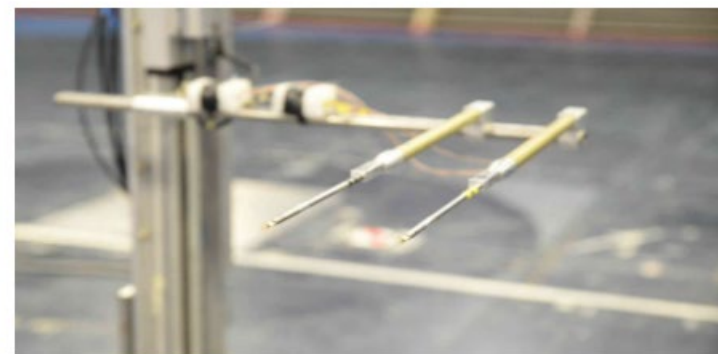
Wind tunnel testing in POLIMI

Mariana (ESR9), Thomas (ESR10) and Kutay (ESR12) performed wind tunnel testing of a floating wind turbine at Politecnico di Milano



Last week as part of the collaboration between the University of Oldenburg and Polimi, Mariana (ESR9), Thomas (ESR10) and Kutay (ESR12) performed wind tunnel testing in the boundary layer test section at Politecnico di Milano. For the second time this year, they measured in the Polimi's facility the wake of a model floating wind turbine under idealized conditions (pre-defined harmonic motions and mild turbulent wind). To perform these tests, they used the MoWiTO 0.6 (Model Wind Turbine Oldenburg 0.6) mounted on a motorized platform that enables to reproduce motions of a floating turbine.

The goal of these tests was to measure the flow of air behind the model floating wind turbine for different inflow and motion conditions with high-accuracy anemometers at various downstream positions. This study enables to better understand the complex dynamics of the flow of air behind a floating offshore wind turbine (FOWT). The outcomes of the measurements will help to validate computer model of FOWT and develop new models for the description of the wake of a moving wind turbine.



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<https://www.floower-h2020.eu/english-version/agenda-news/wind-tunnel-testing-in-polimi>

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