

# Partner Search: Origami & Politecnico di Milano

**Topic:** *HORIZON-CL5-2027-02-D3-09 — Innovative technologies and solutions to improve wave and tidal energy systems*

**Data:** 05/2026

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**ENG**

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## 1. Activities and Competencies We Offer

Origami (PoliMi spin-off) develops modular WECs. With PoliMi we offer:

Power Take-Off (**PTO**) design and validation, including thermal and performance bench testing, parametric CAD mechanical design, and control software development for extracted power optimization. Advanced **hydrodynamic** modeling via SPH and multi-body simulation (DualSPHysics, Project Chrono, MoorDyn+), WEC-Sim modeling. **Digital Twin** based on multi-physics models for performance prediction and real-time optimization dashboards. Offshore **Edge Computing** for hosting critical computational workloads, IoT sensors, and underwater monitoring networks.

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Area	Contribution
<b>PTO Design &amp; Testing</b>	Thermal/performance validation, parametric CAD design, control software & power optimization
<b>Hydrodynamic Modeling</b>	SPH simulation (DualSPHysics, Chrono, MoorDyn+), WEC-Sim, wave tank testing
<b>Digital Twin &amp; Analytics</b>	Multi-physics models, performance prediction dashboards
<b>Edge Computing</b>	Underwater IoT node, offshore compute hosting

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## 2. Current Status and Preliminary Results

TRL 2-3. Validated hydrodynamic models. **Winners of Switch2Product (S2P)** and accelerated by **Tech Europe Foundation (TEF)**.

The core device is under development with promising results on the mechanical transmission. Simulations completed for power extraction estimates in the Mediterranean Sea.

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### 3. Role We Seek in the Consortium

We aim to join the project as a **technical partner**, supporting a coordinator, and contributing our expertise to advance WEC technology.

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### 4. Resources and Links

- **Origami Technology:** [origami-technology.com](http://origami-technology.com)
- **PoliHub – Innovation District:** [polihub.it](http://polihub.it)
- **Switch2Product:** [s2p.polimi.it](http://s2p.polimi.it)
- **Tech Europe Foundation:** [tef.tech](http://tef.tech)
- **PoliMi Mechanical Engineering Dept:** [mecc.polimi.it](http://mecc.polimi.it)
- **PoliMi DICA:** [dica.polimi.it](http://dica.polimi.it)