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Robust and reliable general management tool for performance and dUraBility improvement of fuel cell stationarY unit

Save the date

FINAL PROJECT WORKSHOP

Focus on Monitoring, Diagnostics, Prognostics and Control of SOC & PEMFC

Webinar organized by the Project RUBY funded by Horizon Europe Clean Hydrogen Partnership

18 November 2025

Schedule 10:00-13:00

Info: workshop@rubyproject.eu

The workshop will present the final results achieved by the EU project RUBY funded by Horizon Europe Clean Hydrogen Partnership. The project has developed, integrated, engineered and tested a comprehensive and generalized Monitoring, Diagnostic, Prognostic and Control (MDPC) tool capable of improving efficiency, reliability and durability of both SOFC and PEMFC systems for stationary applications. The MDPC tool features Electrochemical Impedance Spectroscopy (EIS)-based stack monitoring for fault diagnosis and lifetime estimation, Balance of Plant diagnostics, supervisory Real Time Optimization control and mitigation strategies. AI-based techniques have been implemented as well, confirming the effective opportunity to perform on-line diagnostics and prognostic analysis with affordable development efforts.

The MDPC tool relies on low-cost dedicated HW, i.e., the RUBY MDPC Board, which has been effectively embedded within SOFC µ-CHP and PEMFC Backup systems. The upgrading of a market-available DC/DC converter and its successful interfacing with the RUBY MDPC Board have contributed to the implementation of EIS-based monitoring on FC commercial systems.

RUBY has demonstrated the expected advancements after a satisfactory final assessment experimental campaign, whose results will be shown during the workshop. The testing of the RTO on the SOFC µ-CHP system led to an improvement of its efficiency by 10% compared to conventional control strategies.

The speakers will describe the most advanced achievements in the field of monitoring, diagnostics, prognostics and control for both SOFC and PEMFC systems. Moreover, the partners of RUBY will share the results of their research activities, connecting degradation phenomena, fault root causes and mathematical frameworks that serve for thorough and integrated system management. The workshop will focus on scalable methodologies that ensure reliable performance of both stacks and BoP components, offering an integrated view on how to raise efficiency, reliability, lifetime, and improve maintenance for SOFC and PEMFC systems.

The event will illustrate the significant progress toward enhanced stack performance and increased competitiveness of fuel cell systems. A comprehensive overview of the project's outcomes and potentials will be provided to stakeholders from both industry and research partners, confirming RUBY's contribution to technological and market advancements beyond the current state of the art.

The program will be posted before 10/11/2025

Registration will be available from 4/11/2025 at www.rubyproject.eu/dissemination/workshop3/#registration

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