

Potential Synergies between the Helmholtz Cluster for a Sustainable and Infrastructure-Compatible Hydrogen Economy and ErUM Research

Tuesday 29 July 2025 12:00 (30 minutes)

In 2020, the German Federal Government and the state government of North Rhine-Westphalia decided that coal firing for electricity generation will be phased out by 2030 to reduce CO₂ emission. Coal mining regions like the Rhenish mining area are affected by this decision. Towards this end, the Helmholtz Cluster for a Sustainable and Infrastructure-Compatible Hydrogen Economy (HC-H₂) was founded. The HC-H₂'s ultimate vision is to research, develop, and demonstrate innovative H₂-based technologies for a climate-neutral energy economy of the future, which comprises basic research up to commercialization with partners. Our mission is the transformation of the Rhenish mining area into a H₂ model region with Europe-wide appeal, thereby contributing to both the successful "Strukturwandel" and a CO₂-neutral energy system of the future. The talk will introduce the overall structure of the HC-H₂ and exemplify our approach using recent examples from our demonstration region for future hydrogen technologies, including Multi-SOFC (electricity and heat generation from hydrogen derivatives for a hospital, Erkelenz), HyFRed (H₂-based reduction of iron ores, Mönchengladbach), and HyHeat (Hydrogen as a fuel in industrial furnaces for press hardening processes, Simmerath). Finally, a few thoughts on innovative H₂-based technologies for shaping the sustainable and digital future of ErUM Research will be shared in the hope to inspire further ideas and discussion.

Sustainability

Sustainable ErUM research centres of the future

Ethics

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