

Korea-EU Horizon Europe Researchers Networking Forum on Energy & Advanced Mobility

Souman Rudra

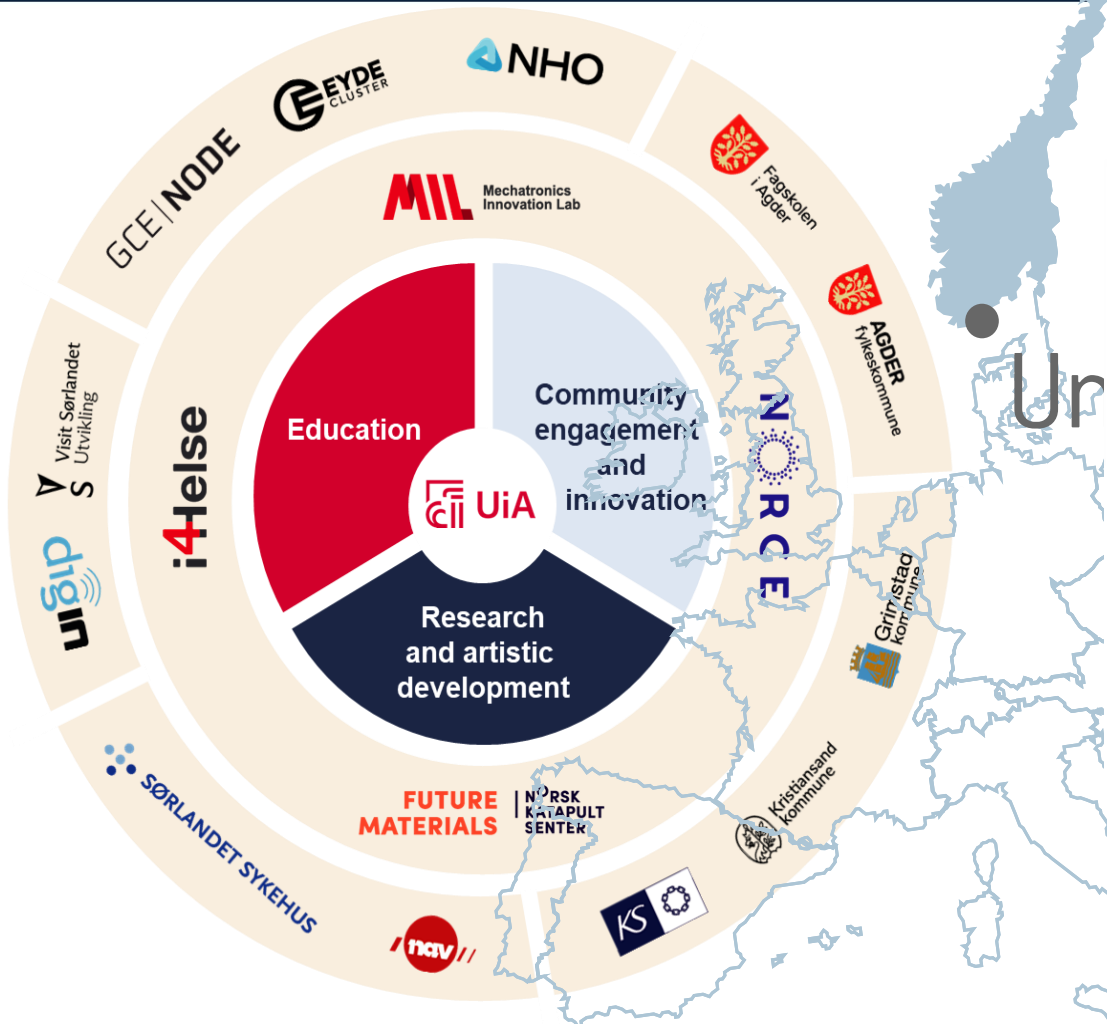
Professor

University of Agder

**Energy Materials, Hydrogen,
Biofuels**



1. Introduction of the University of Agder



UiA in numbers - 2024



Graduates

2944



Staff

1529



Doctorates

415



Budget NOK

1.96 billion



External funding NOK

361 million



Students

14 185



Doctorates awarded in 2023

67



2. Expertise

Nanomaterials & Energy Research Group

Department of Renewable Energy
Faculty of engineering and science,
University of Agder.

Primary Focus:

- ❑ Development and analyze novel energy materials.
- ❑ Leveraging next-generation AI frameworks for energy applications.

Quantum-mechanical simulation

Ab-initio quantum-mechanical simulations (DFT) to screen and down-select materials.

Synthesis

Guided by the DFT screening, we synthesize prioritized compositions.

Device validation

Assemble devices and benchmark power, efficiency, and durability.

Benchmarking vs Industrial Standard

Demonstrate that the design-frozen device meets or exceeds industry benchmarks under standardized protocols.

Characterization

Structure-property correlations via crystallography, spectroscopy, surface chemistry, and electrochemical diagnostics.

Iterative Optimization

Diagnose bottlenecks via post-mortem XPS/SEM/XRD and weak defect density/porosity; re-run targeted tests.



2. Expertise

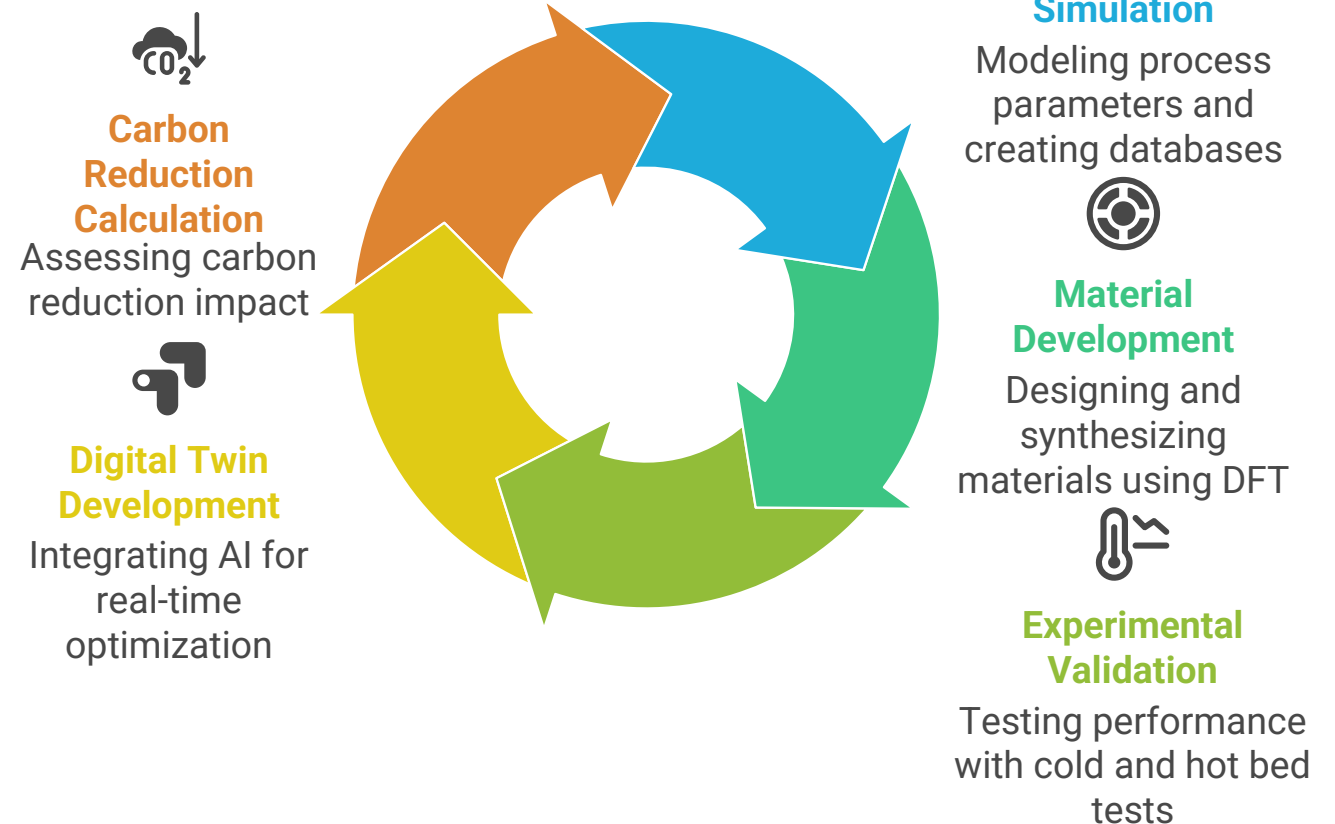
Virtual Twin Development: Hydrogen production via biomass gasification and chemical looping

BioEnergy and thermal Energy Research Group

Department of Renewable Energy
Faculty of engineering and science,
University of Agder.

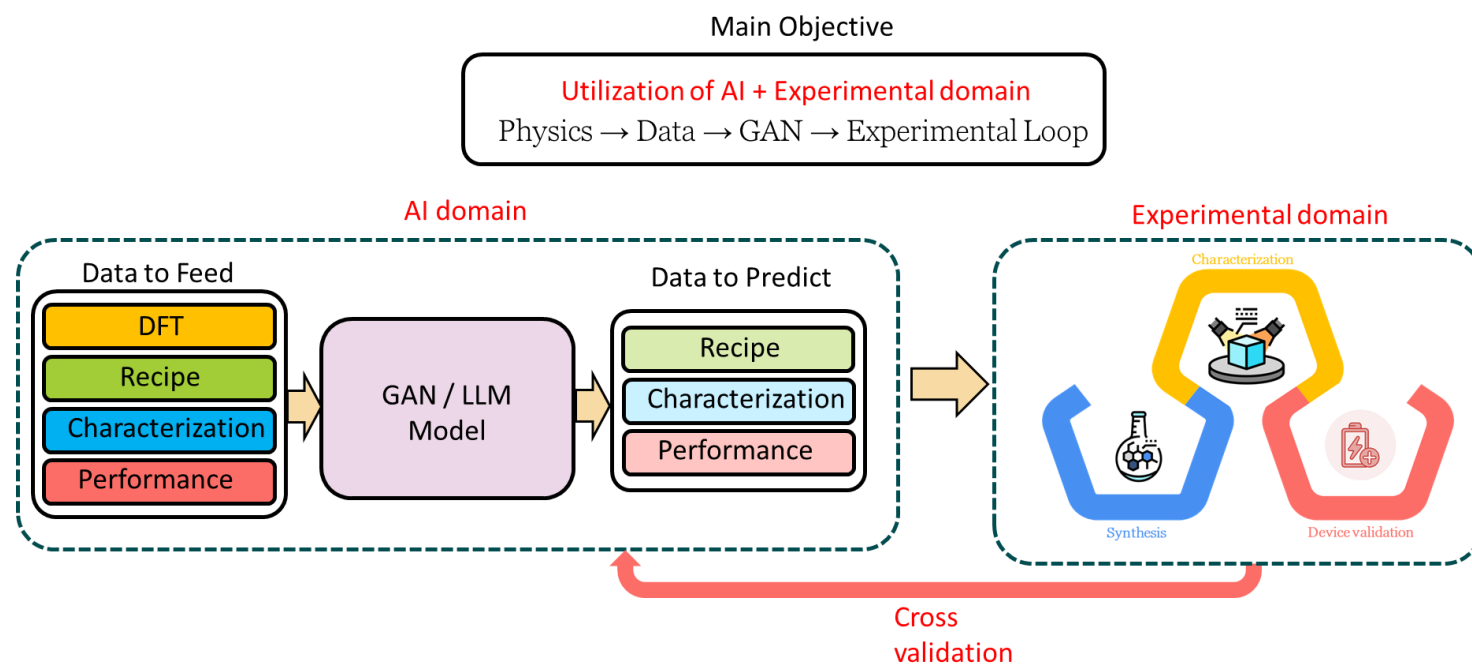
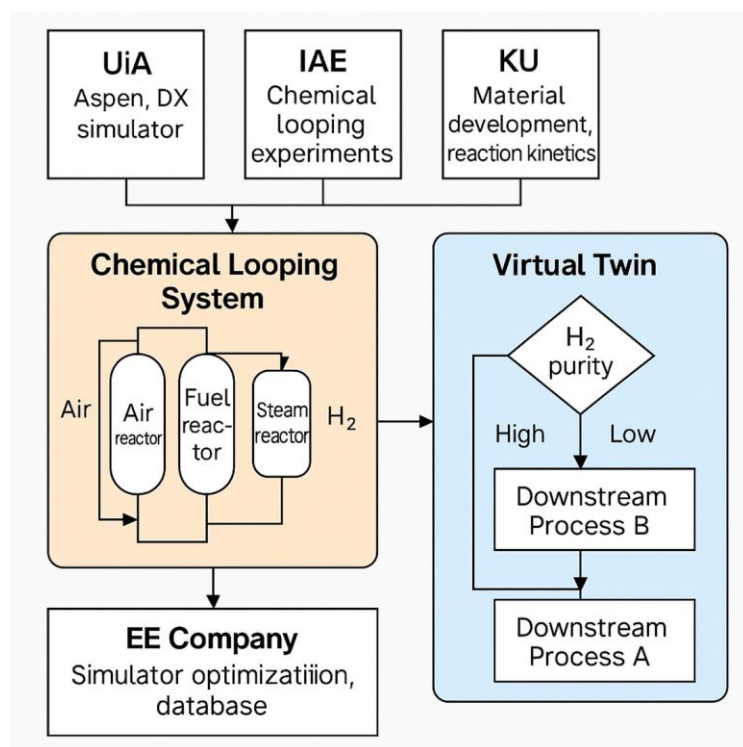
Primary Focus:

- ☐ Process design, CFD modeling, Biomass Characterization
- ☐ Leveraging next-generation AI frameworks for a bio-based process.



3. Your Project Idea

CALL: HORIZON-CL5-2026-04-Two-Stage-D3-02: Next generation of renewable energy technologies





4. Profile You are Seeking and Why

What partners with what profiles are you looking for?

- AI in Material Characterization and Modeling
- Process intensification, Process development

PARTNERS FOR OTHER HORIZON CALLS

- **HORIZON-CL5-2026-04-Two-Stage-D3-02: Next generation of renewable energy technologies**
- **HORIZON-CL5-2026-11-D3-05: Demonstration of solid biofuel supply and conversion to large scale CHP from fully sustainable regional value chains**
- **HORIZON-CL5-2026-03-D3-21: Hybrid AI-Control Framework for a next-generation grid-scale energy storage and system integration**



Thank you
for your kind attention!

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