

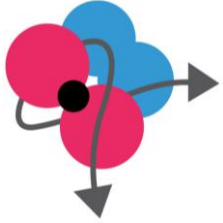
ELEGANCy

Hydrogen supply and CO₂ injection and storage

<http://www.elegancy.no/>

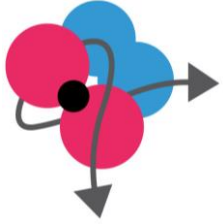
Webinar, 2020-06-22

Hydrogen supply and CO₂ injection and storage



10:00	<ul style="list-style-type: none">Part 1: Low-carbon hydrogen supply with CCS
	<ul style="list-style-type: none">Welcome
	<ul style="list-style-type: none">Advanced property models for processing, transport and storage of gas mixtures containing H₂ Roland Span (Ruhr-University Bochum)
	<ul style="list-style-type: none">Optimization of sorption enhanced WGS for use with basic oxygen furnace gas from the steel plant Jean-Pierre Pieterse (TNO)
	<ul style="list-style-type: none">Biomass to hydrogen with CCS: can we go negative? Cristina Antonini (ETH)
	<ul style="list-style-type: none">Demonstration of VPSA for CO₂-H₂ co-production Anne Streb (ETH)
	<ul style="list-style-type: none">Life Cycle Analysis of low-carbon H₂ supply with CCS Karin Treyer (Paul Scherrer Institute)
11:30	<ul style="list-style-type: none">Break

12:30	<ul style="list-style-type: none">Part 2: CO₂ transport, injection and storage
	<ul style="list-style-type: none">Introduction Svend Tollak Munkejord (SINTEF)
	<ul style="list-style-type: none">The influence of thermodynamic properties on CO₂ storage in saline aquifers Martin Trusler (Imperial College London)
	<ul style="list-style-type: none">Towards an accurate and consistent description of thermodynamic properties of mixtures of CO₂ with brines Roland Span (Ruhr-University Bochum)
	<ul style="list-style-type: none">Depressurization of CO₂-N₂ and CO₂-He in a tube Svend Tollak Munkejord (SINTEF)
	<ul style="list-style-type: none">Laboratory studies to understand the controls on flow and transport for CO₂ Ronny Pini and Sam Krevor (Imperial College London)
	<ul style="list-style-type: none">Mt. Terri experiment: Fault trapping Antonio Pio Rinaldi and Alba Zappone (ETH)
	<ul style="list-style-type: none">Microbial activity in response to H₂ in a CO₂-rich stream Simon Gregory (BGS)
14:00	<ul style="list-style-type: none">End of webinar



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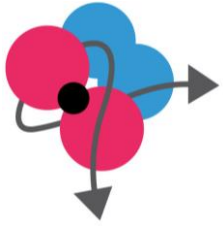
WP1 Low carbon hydrogen supply with CCS

Mijndert van der Spek, deputy-WP leader

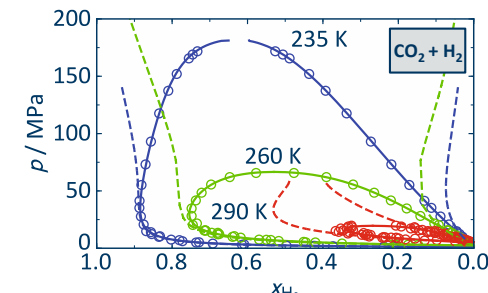
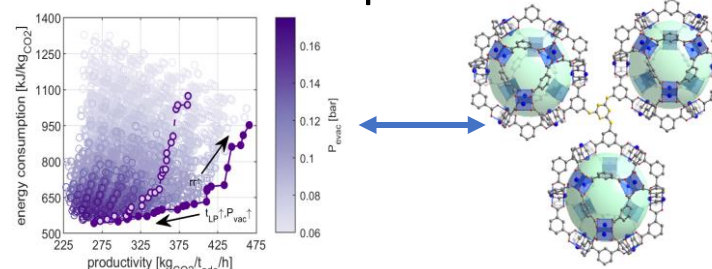
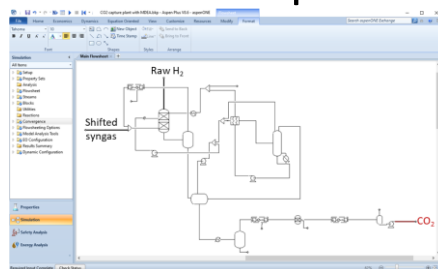
ETH, ECN, UU, RUB

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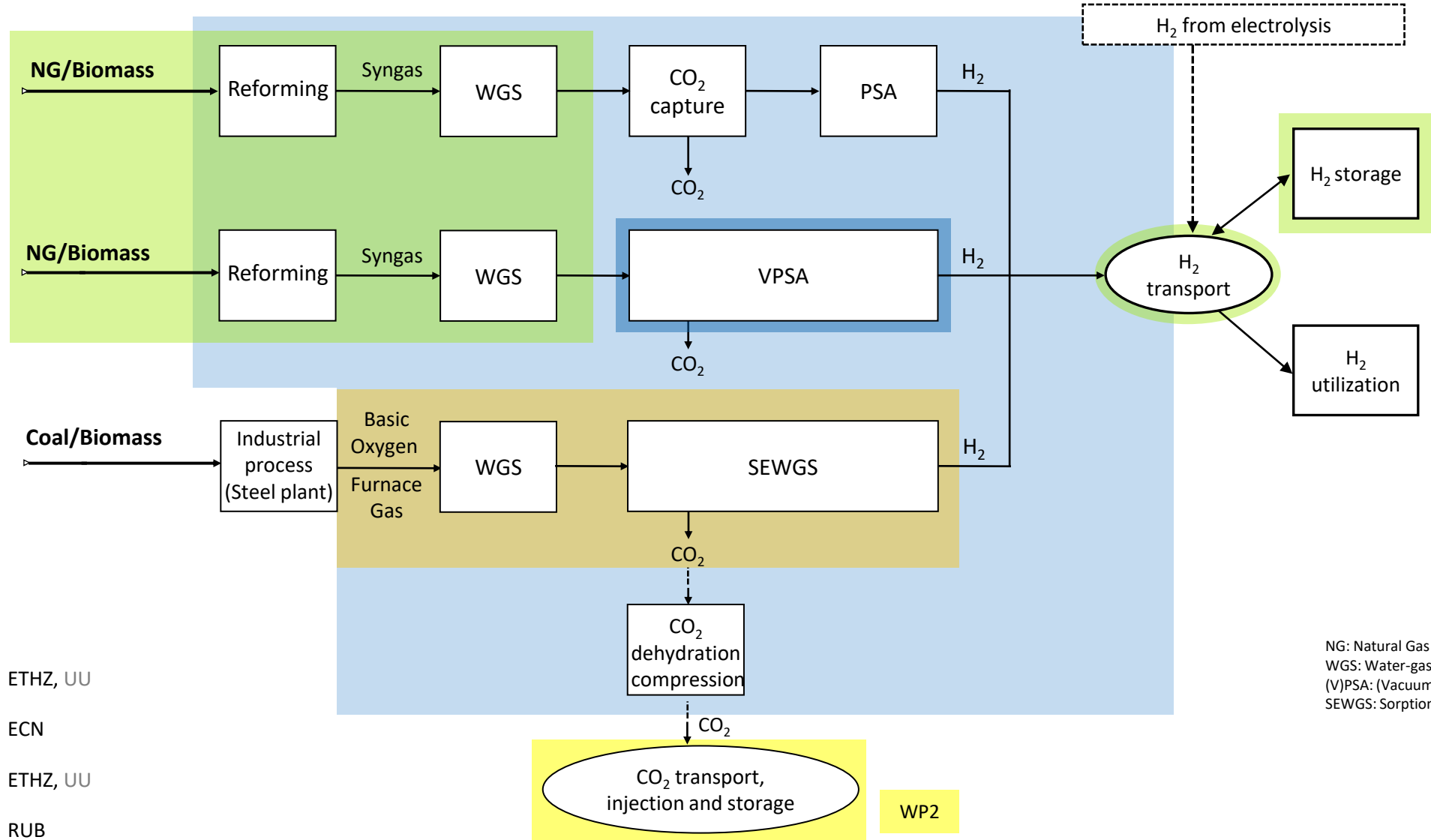
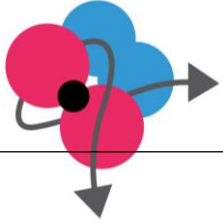
WP1 enabled the efficient production and supply of H₂ with CO₂ capture by...



- Developing an intensified process that combines CO₂ separation and H₂ purification into a single, energy efficient, adsorption unit
- Synergistically developing new adsorbent-process combinations, thereby fast-tracking technology development
- Validating that commercially sold water-gas shift sorbents can perform durably in high CO/CO₂ steelworks off-gases
- Developing SEWGS technology towards TRL7 demonstration on steel off-gases: the final step before commercial roll out
- Combining hydrogen production and CO₂ capture into optimised plant configurations, including hydrogen from biogenic sources
- Significantly improving the thermodynamic models for CO₂ and H₂ mixtures, helping to de-risk the development of production and transport infrastructure

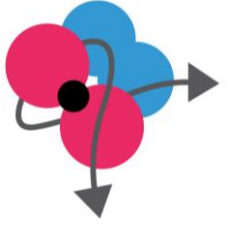


ELEGANCY – WP1 overview



- Task 1.1 ETHZ, UU
- Task 1.2 ECN
- Task 1.3 ETHZ, UU
- Task 1.4 RUB

NG: Natural Gas
 WGS: Water-gas shift section
 (V)PSA: (Vacuum) Pressure swing adsorption
 SEWGS: Sorption enhanced WGS



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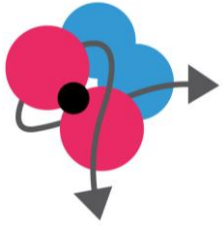
WP2 CO₂ transport, injection and storage

Svend Tollak Munkejord, WP leader

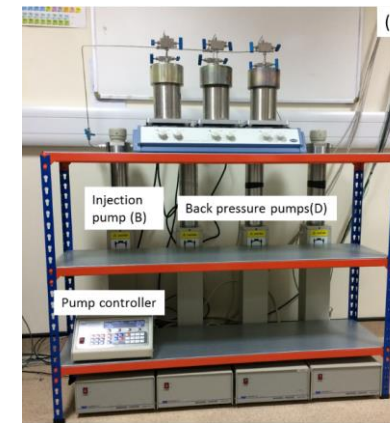
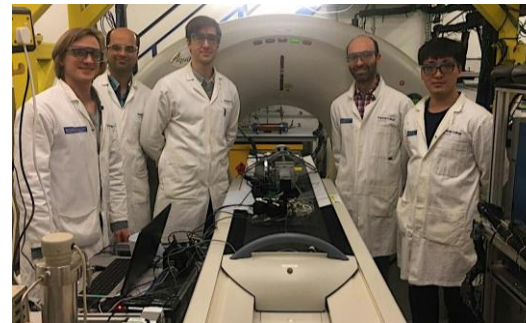
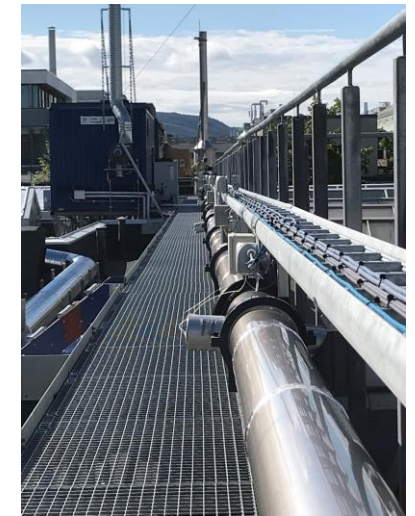
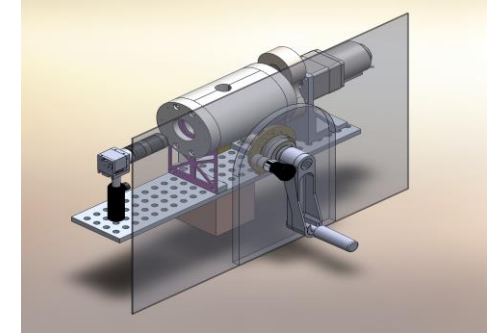
SINTEF, BGS, SCCER, ICL, RUB

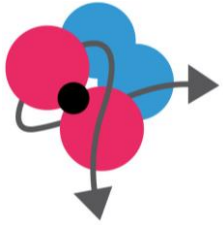
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Facilitating the engineering of transport and storage systems for CO₂ stemming from hydrogen production by...

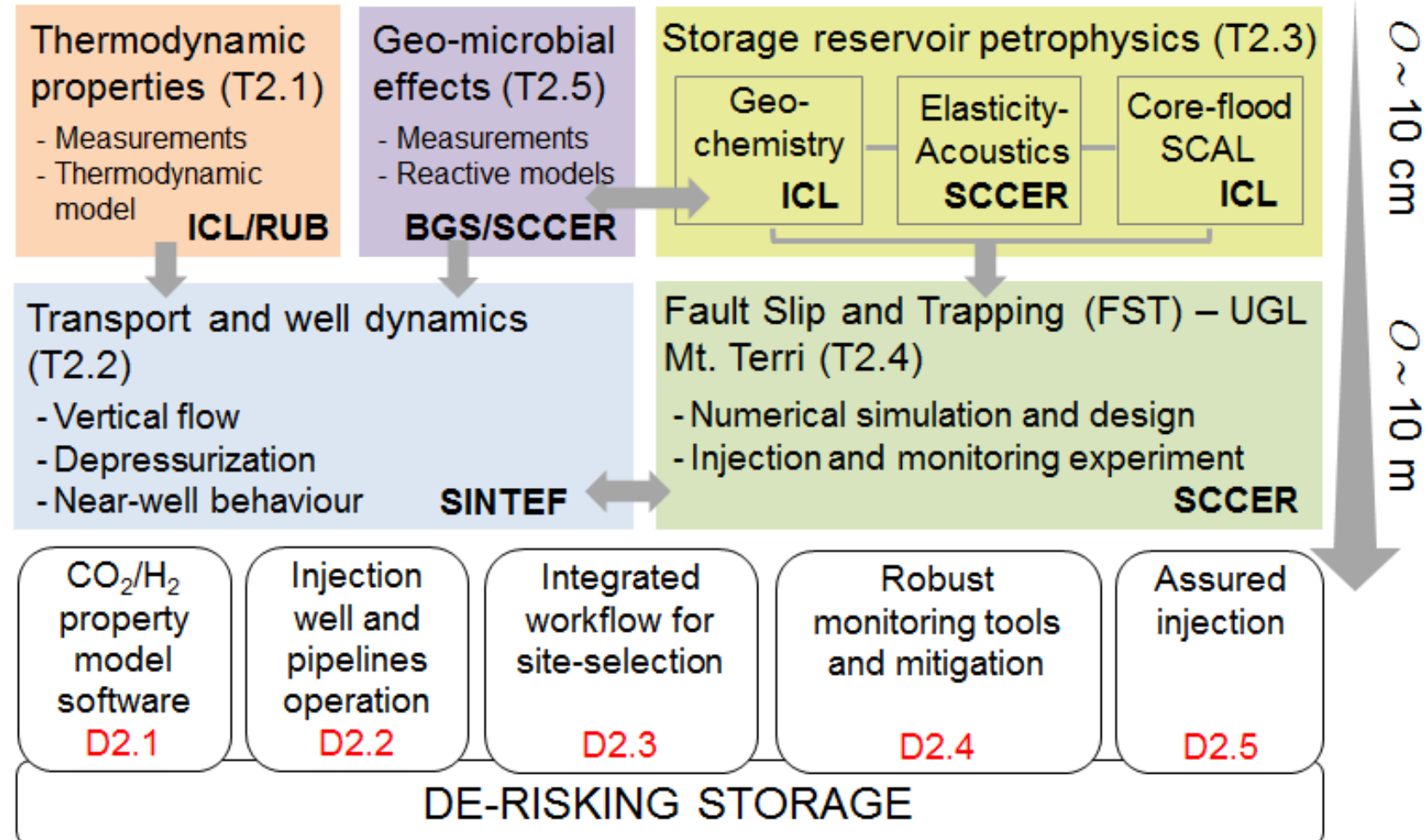


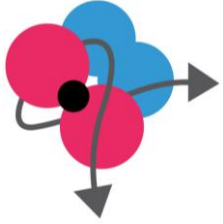
- Improved prediction of the properties of CO₂ mixed with hydrogen
- Providing a realistic description of CO₂ pipeline and injection operations including startup and shutdown
- Validated experimental and modelling approach to allow safe and effective CO₂ storage in underground rocks
- Understanding the hydrogen-stimulated microbial response to CO₂ injection in underground rocks
- *Combined laboratory and field experiments with advanced modelling*





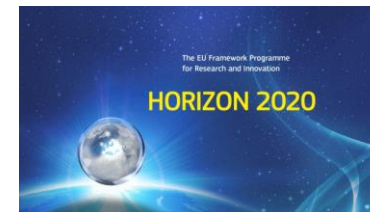
ELEGANCY WP2 – interconnections





Acknowledgement

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Contact: Svend Tollak Munkejord, svend.t.munkejord@sintef.no