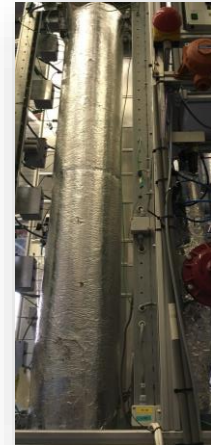


# › CARBON CAPTURE, UTILISATION (AND STORAGE)

MMIP 6 & 8 | Jurriaan Boon

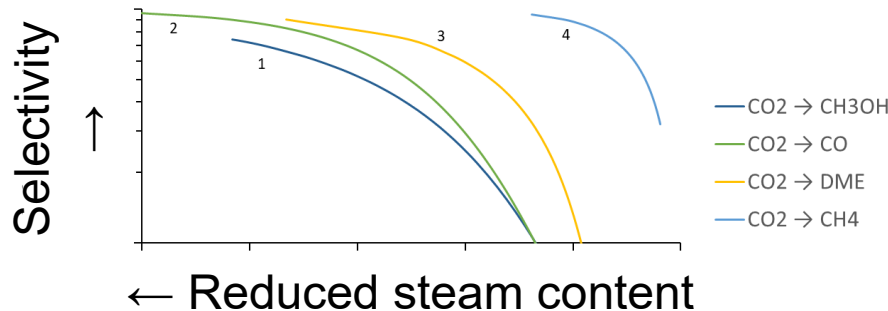
# RE-USE OF INDUSTRIAL GASES USING MEMBRANES AND ADSORBENTS

- › Titel: Advanced separation technologies for re-use of CO<sub>x</sub>
- › Objective: Develop efficient gas separation processes and process integration options for economical recovery of energy, materials
- › Activities: Robust high-temperature adsorbents for CO<sub>2</sub> H<sub>2</sub>S capture, Low-temperature adsorbents for CO<sub>2</sub> H<sub>2</sub>S capture, Tailored adsorbents through additive manufacturing, High-temperature membranes for H<sub>2</sub> separation
- › Project partners: OEM, end users industry
- › Project budget: ~ M€ 0,5-1,5, mixed funding 50% industrial contribution



# ENHANCING THE CONVERSION OF CO<sub>2</sub> WITH H<sub>2</sub> BY IN-SITU REMOVAL OF BYPRODUCT

- › Titel: Separation enhanced synthesis of value-added chemicals and fuels
- › Objective: Improve efficiency and economy for indirect synthesis, by removal of product or H<sub>2</sub>O byproduct by adsorbents and/or membranes
- › Activities: Develop and demonstrate reactor technology in industrially relevant environment
- › Project partners: OEM, end users in industry
- › Project budget: ~ M€ 1,7, mixed funding 50% industrial contribution

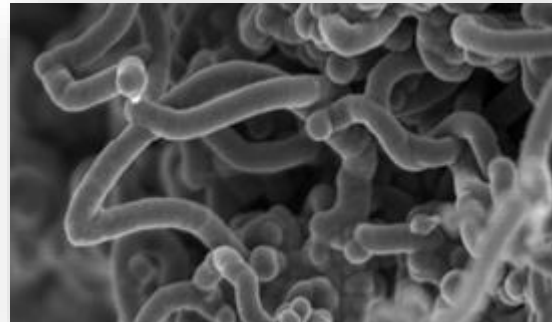
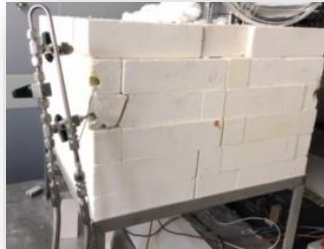


# INTEGRATING CO<sub>2</sub> CAPTURE WITH UTILISATION

- › Titel: Integrated CO<sub>2</sub> capture and utilisation system development
- › Objective: Develop and demonstrate a cost effective integrated CO<sub>2</sub> capture with electrochemical conversion
- › Activities: Develop electrochemical reactor system, develop integrated capture system, build, test, validate and optimize
- › Project partners: End users in industry
- › Project budget: ~ M€ 1,8, mixed funding 50% industrial contribution

# CAPTURE AND CONVERSION OF CO<sub>2</sub> TO CARBON NANOFIBRES

- › Titel: Direct electrochemical reduction of CO<sub>2</sub> to carbon nanostructures
- › Objective: Develop, scale-up, and demonstrate direct route for high-temperature electrolysis, significantly lower costs than CVD or electrospun (Mission Innovation topic)
- › Activities: Develop modular electrolyser technology, demonstrate
- › Project partners: Nanofibre producers, OEM
- › Project budget: ~ M€ 0.9, mixed funding 50% industrial contribution



# HYDROGEN AND CARBON PRODUCTION: MOLTEN METAL BASED METHANE CRACKING

- › Titel: Molten metal based cracking of methane
- › Objective: Demonstrate possibility to crack methane in hydrogen and carbon (which can subsequently be used in value added processes)
- › Activities: Design a novel molten metal based reactor system, construct and test, technical-economic evaluation
- › Project partners: end users in industry
- › Project budget: ~ M€ 1,0, mixed funding 50% industrial contribution

› **THANK YOU FOR YOUR  
ATTENTION**

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