Power and Flow

Mechanical Engineering

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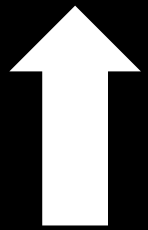
SET Specialization Meeting

TU/e EINDHOVEN UNIVERSITY OF TECHNOLOGY

About power generation

Clean words: Battery, electricity, renewable, solar, wind, zero-emission …

Clean words: Combustion, fuels, combustion engines ….

new fuels  **new engines**

What does P&F Group do?

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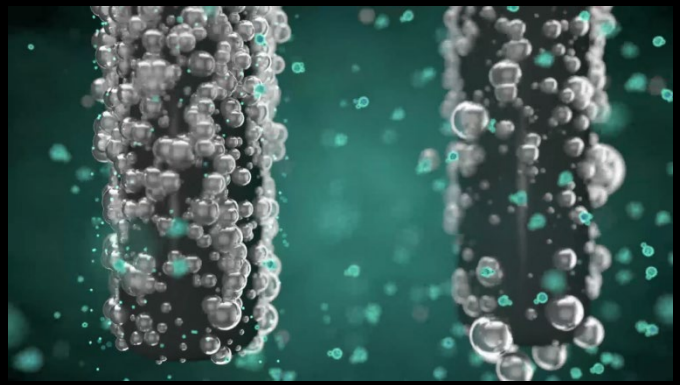
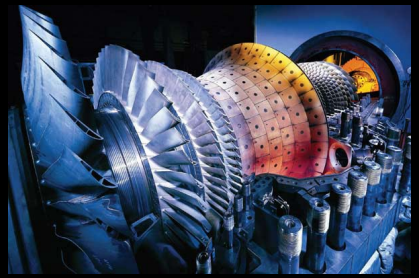
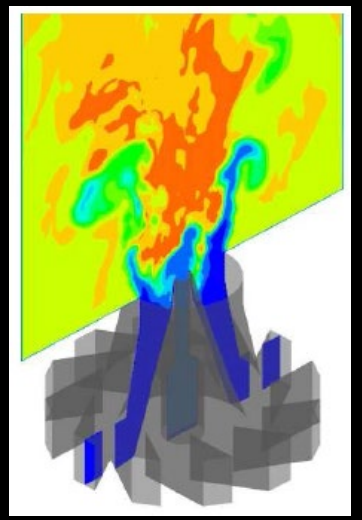
Clean energy pipeline enabled by *hydrogen*

Electrolysis—Produce H_2 from water → **Burning H_2 to generate power**



Understand and control bubbly flows
(Prof. Niels Deen, Dr. Yali Tang)

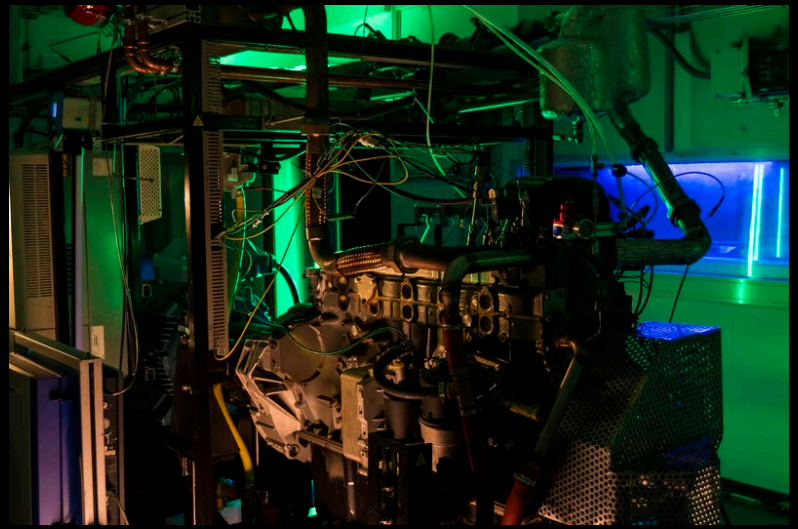




Advanced CFD modelling of H_2 combustion
(Profs. Jeroen van Oijen, Bart Somers, and Rob Bastiaans)

Clean energy pipeline enabled by *hydrogen*

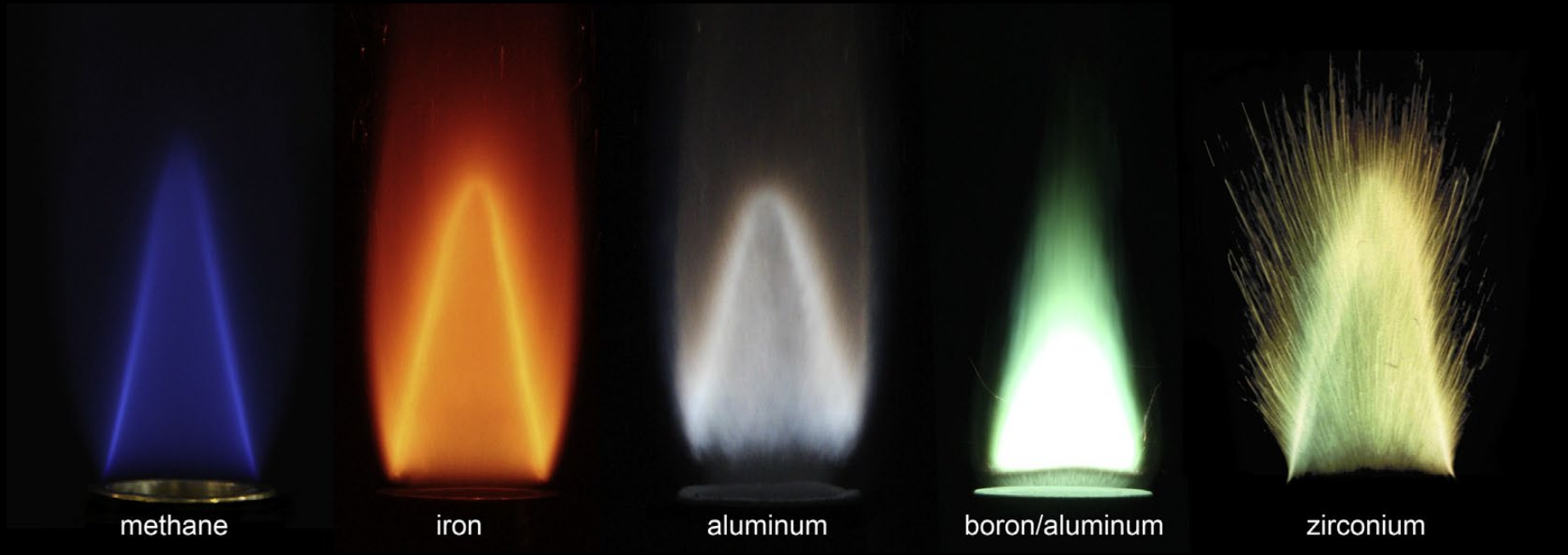
Build new engines burning hydrogen and e-fuels for heavy-duty vehicles



DAF TNO innovation for life Shell

Zero Emission Laboratory (ZELab)
(Prof. Bart Somer, Dr. Noud Maes)

Renewable energy cycle enabled by *metals*



Metal powders (micron-sized particles) can burn like a gaseous fuel.

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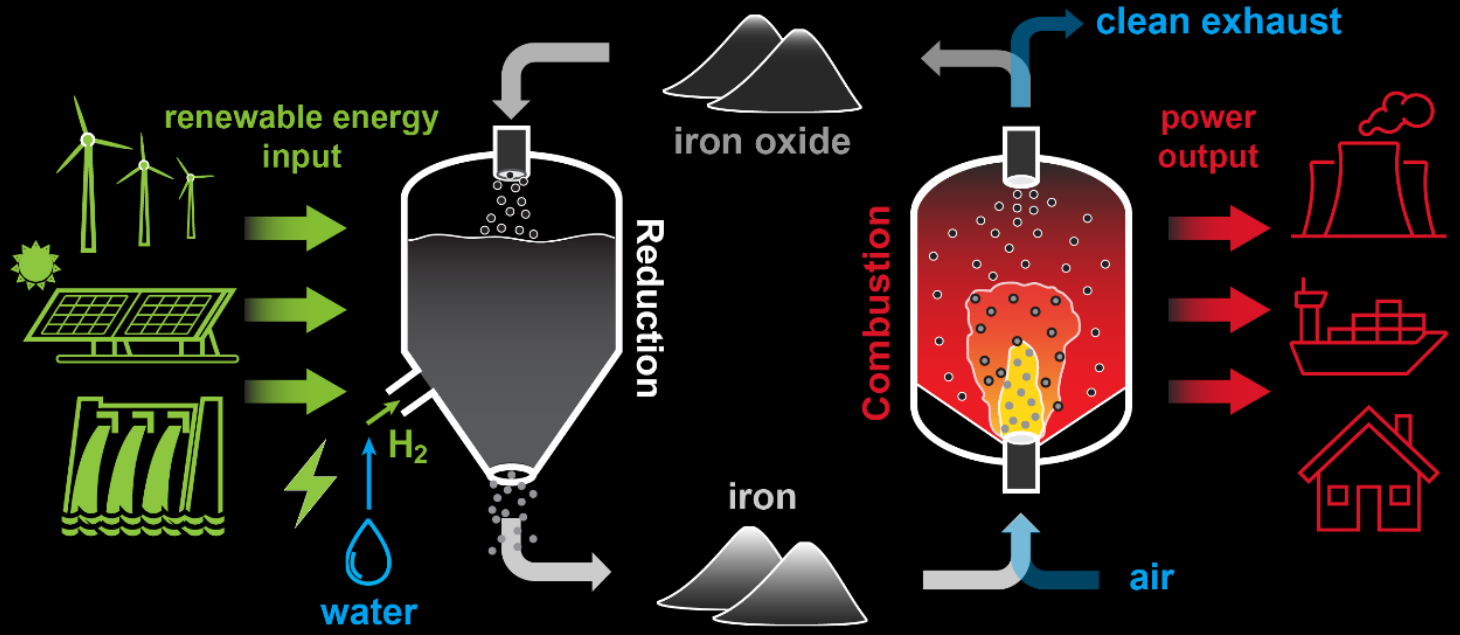
Use *iron powder* as a carrier of *renewable energy*



Research on ***iron-oxide reduction***
(Prof. Niels Deen, Drs. Yali Tang and Giulia Finotello)

Research on ***iron combustion***
(Profs. Philip de Goey, Jeroen van Oijen, Benedicte Cuenot, Dr. Xiaocheng Mi)

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Use *iron powder* as a carrier of *renewable energy*

Burners of iron powder in laboratory

Student Team collaborating with the Power & Flow Group

SOLID

To build industrial-scale combustors:

Spinoff

metalot

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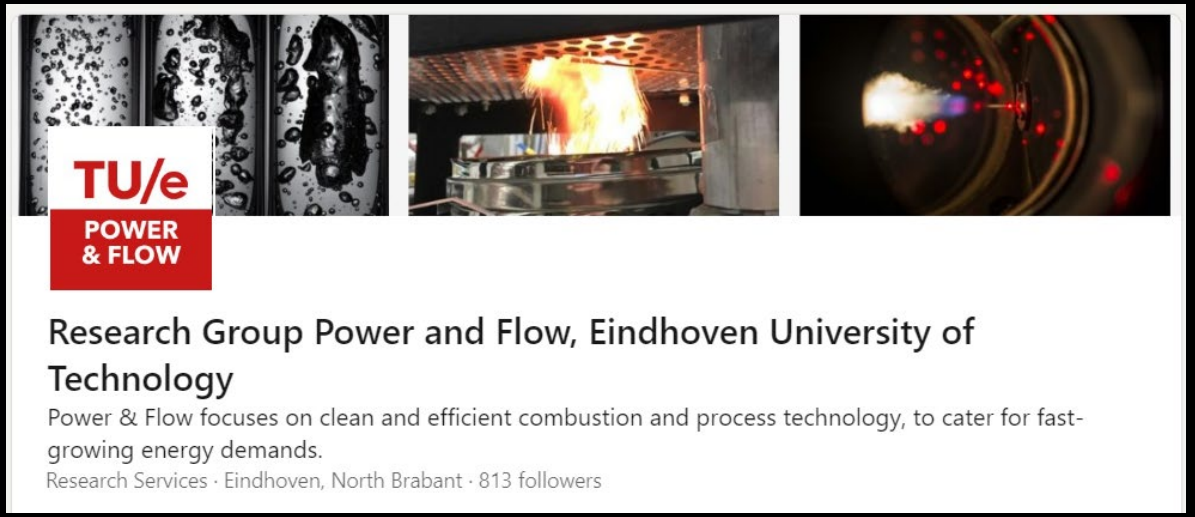

Or scan the QR code:

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Thank you all for your attention! ☺

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