“DANGEROUS FUELS” FOR CARS – A WAY TO SAVE THE WORLD

IC engines?  future automotive powertrain  batteries?

Internal combustion engines
– Scalable, high power density, cheap
– Sustainable (close CO₂ cycle)
– Fuel flexible (fossil fuels, biofuels, synthetic fuels)
– Efficiency improvement possible

KEEP THE ENGINE, CHANGE THE FUEL

Methanol as an alternative fuel
Produced in a carbon-neutral cycle
– CO₂ is captured directly from the air or from the combustion
– H₂ and CO₂ are employed to create synthetic methanol

Methanol is the simplest type of liquid synthetic fuel

Methanol is a great fuel for internal combustion engines
– Low CO₂ emissions from the combustion
– High engine efficiency

Highly efficient methanol engines with on-board fuel reforming
Recovering of engine exhaust heat for methanol reforming
– H₂-rich gas is produced through an endothermic process
– Products have a higher energy than the inlet
– Engine is fuelled with methanol and H₂-rich gas

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