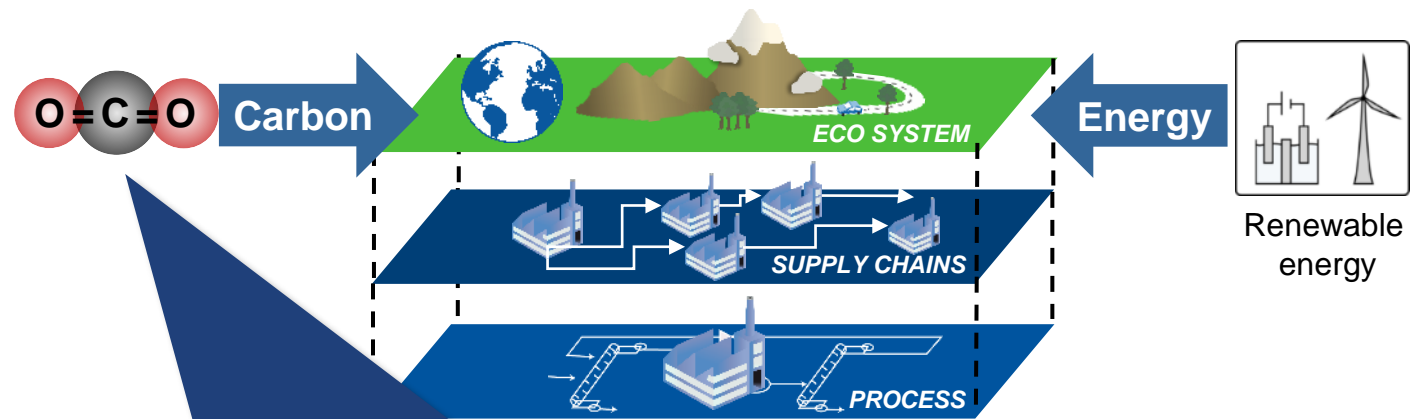


From molecules to sustainable energy & chemicals

André Bardow

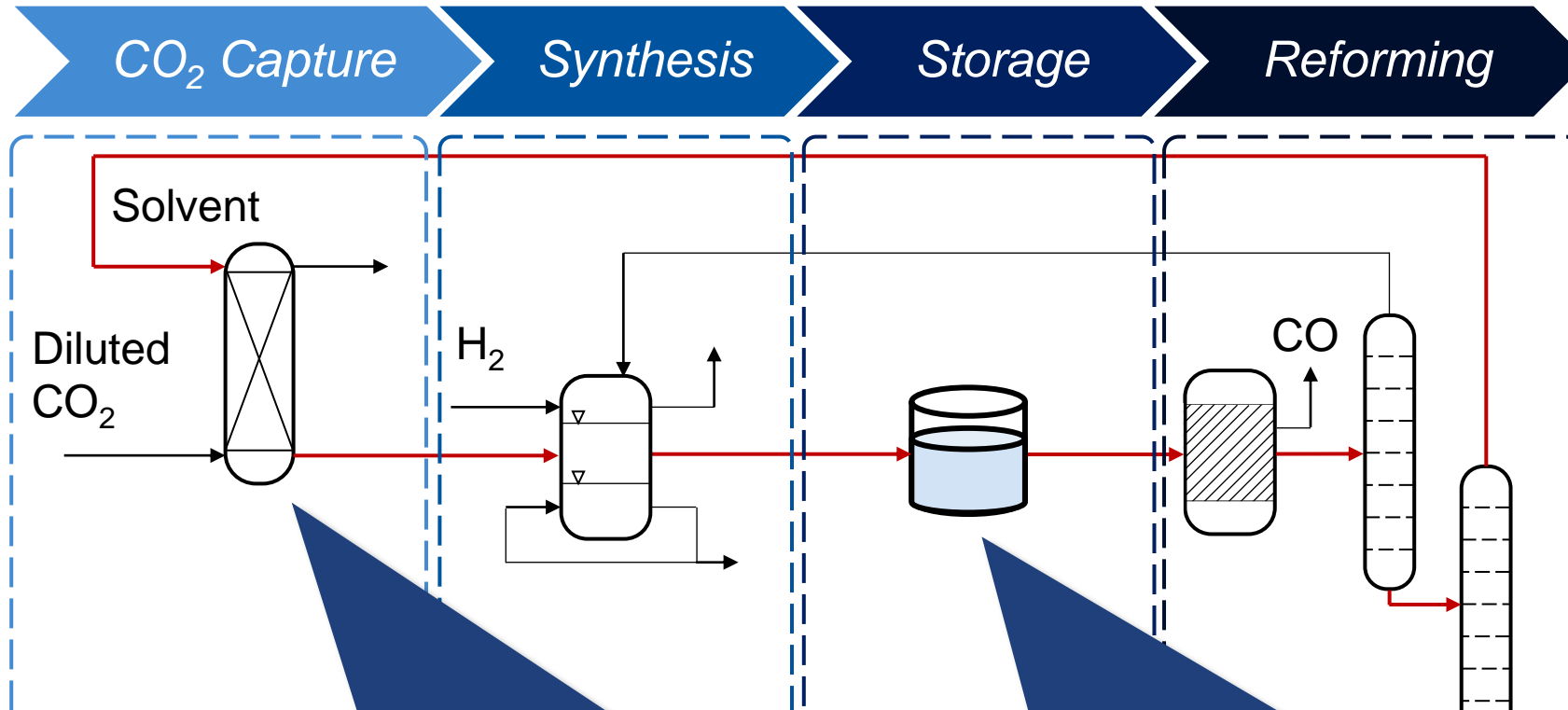
Energy & Process Systems Engineering

From Molecules to **Sustainable Energy & Chemicals**

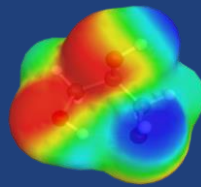


CO_2 as carbon feedstock for energy storage ?

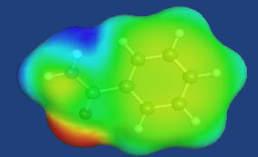
Chemical Energy Storage by Integrated Carbon Capture & Conversion



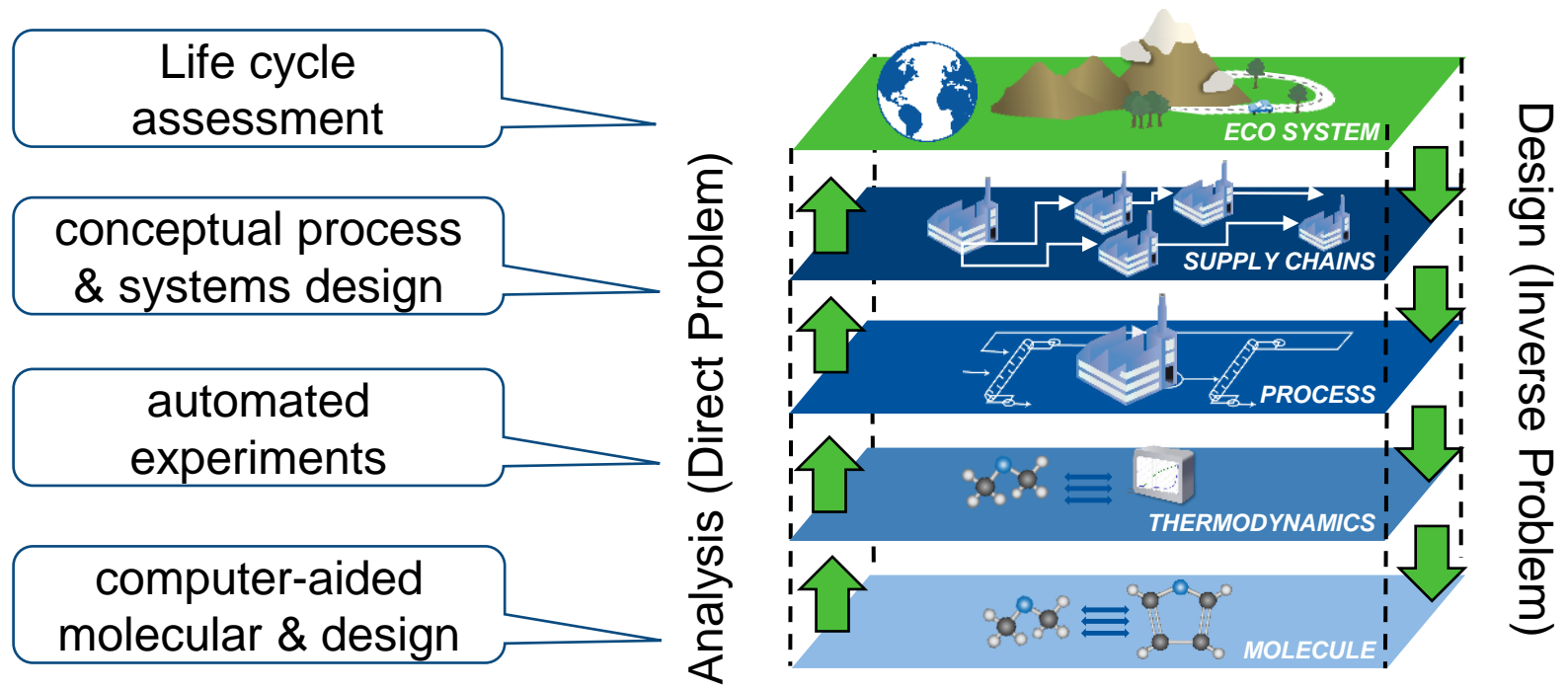
Which solvent molecule?



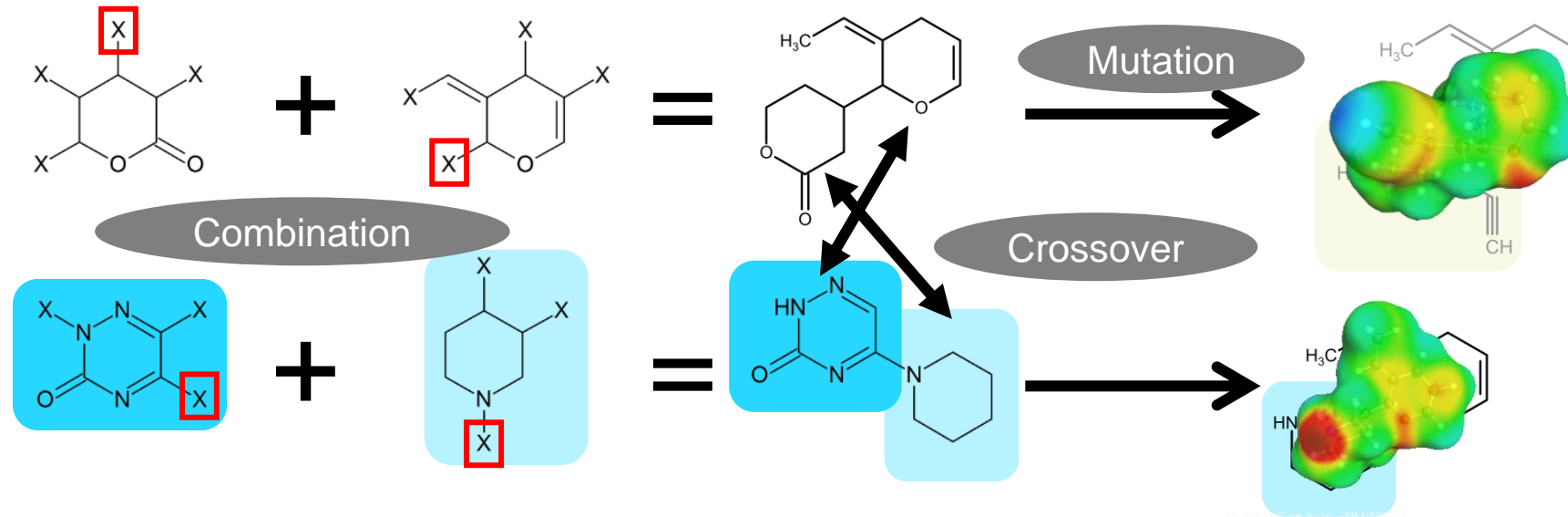
Which storage molecule?



From Molecules to Sustainable Energy & Chemicals

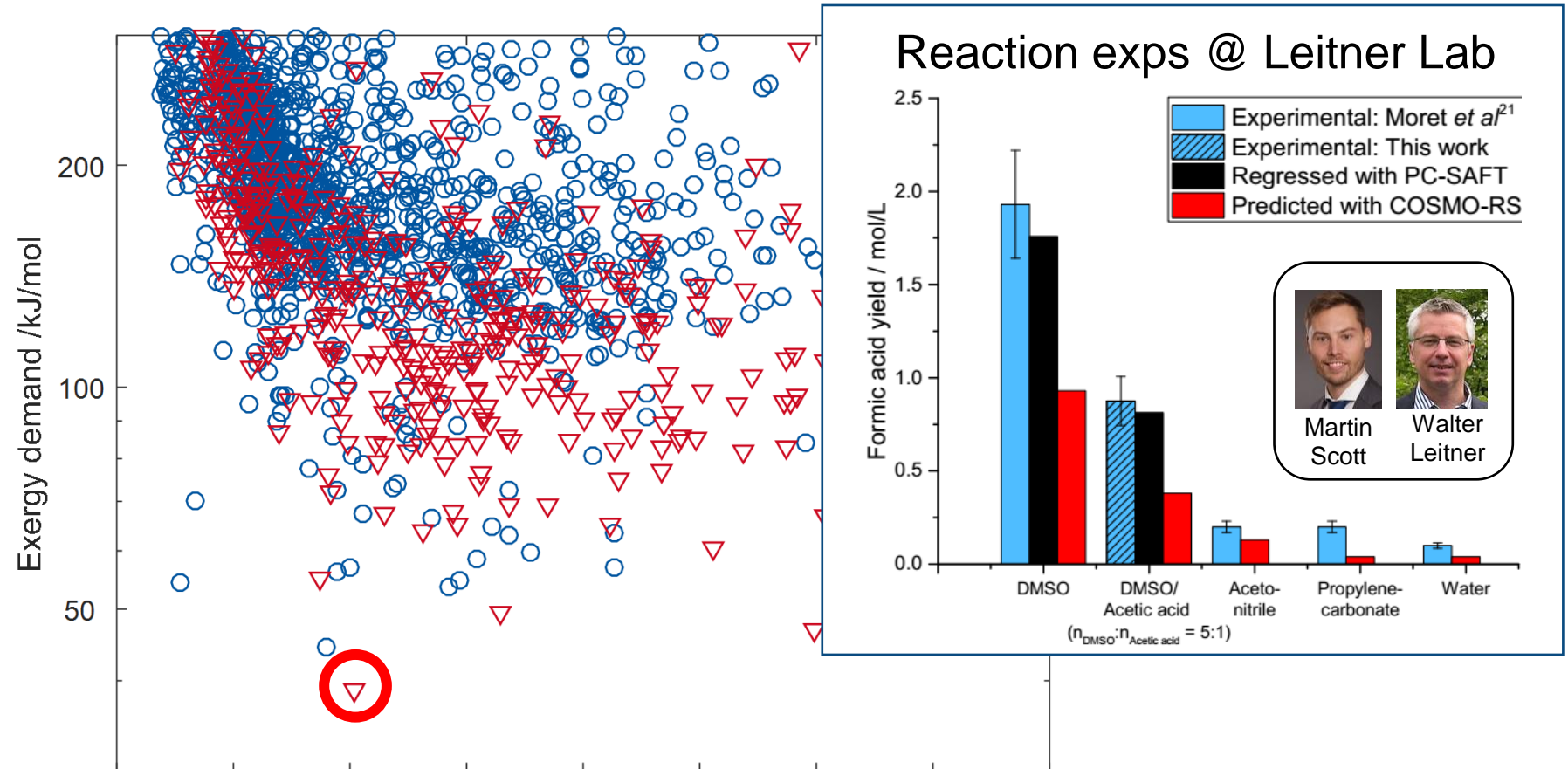


Computer-aided Molecular Design using Quantum Mechanics



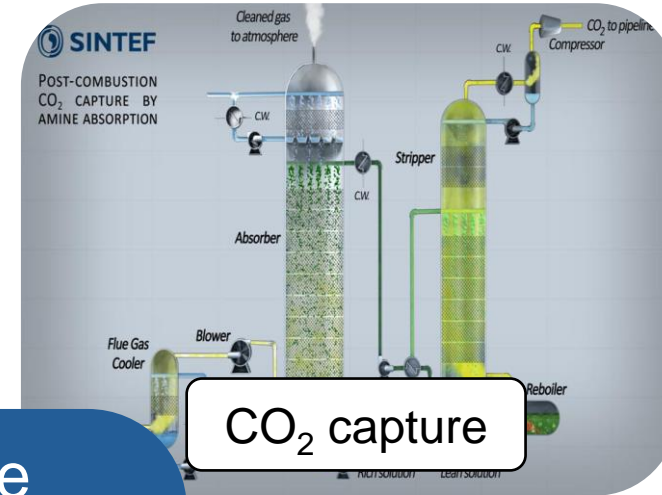
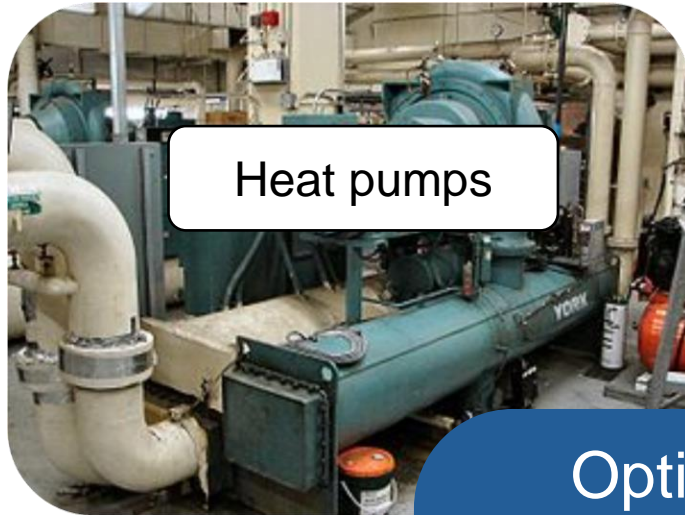
- *In silico* prediction of process performance of novel molecules
- Explore the molecular space in process optimization

Chemical Energy Storage by Integrated Carbon Capture & Conversion



Efficient design of optimal molecules & optimal processes

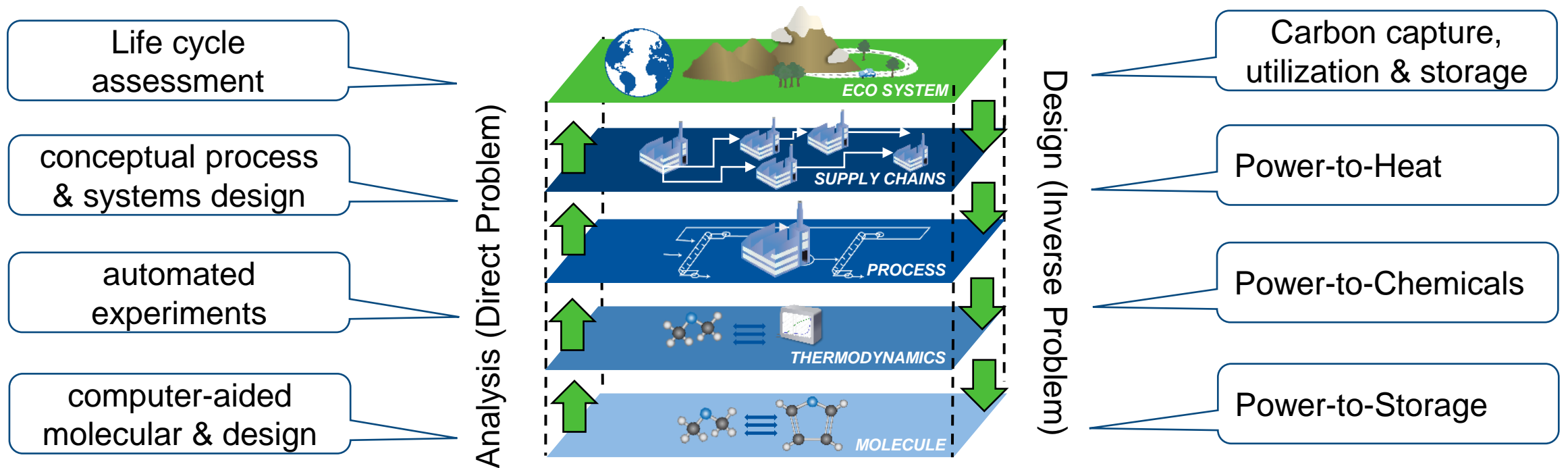
Integrated Design of Molecules & Processes



Optimal Molecule
+
Optimal Process
= ?



From Molecules to Sustainable Energy & Chemicals



Thank you for your attention!

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