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Development and numerical modelling of a supercharging technique for positive displacement expanders

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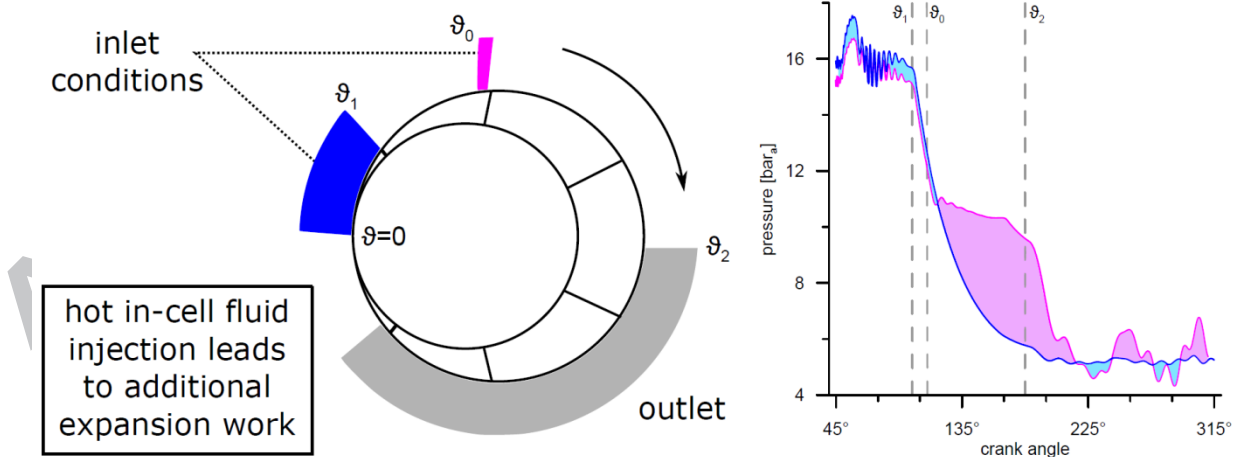
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Highlights

- Injecting hot fluid during the expansion raises the cell pressure and increases the power output
- Implementation in a validated numerical model of a sliding vane ORC expander is carried out
- Effects of the supercharging on the angular pressure evolution are emphasized
- Benefits in the additional mechanical power output range from 43% to 70%

Graphical Abstract



Keywords

Waste heat recovery; Organic Rankine Cycle; automotive; internal combustion engine; positive displacement expander; sliding vane expander

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