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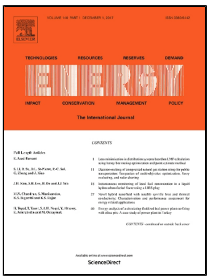

Experimental and numerical investigation on H_2/CO formation and their effects on combustion characteristics in a natural gas SI engine

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Highlights

1. Formation of H_2/CO through fuel-rich combustion was quantitatively characterized;

2. H_2/CO addition significantly increased indicated thermal efficiency and the tolerance of EGR;

3. H_2/CO addition decreased total unburned HC with the acceptable increase in NOx and CO emissions;

4. Key reactions promoting combustion were identified by reaction path and sensitivity analysis.