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Evaluating Fuel-Air Mixing in a Direct-Injection Hydrogen-Fueled Internal Combustion Engine ALIREZA EBADI, CHRISTOPHER WHITE, University of New Hampshire — Proper orthogonal decomposition (POD) is used to decompose in-cylinder particle image velocimetry (PIV) vector fields acquired in a direct injection hydrogen-fueled internal combustion engine (DI-H2ICE) into mean, coherent, and incoherent vector fields, where the coherent vector fields are presumed to capture the cycle-variability of the flow. The POD vector fields are then used to investigate the effects of fuel injection timing on in-cylinder turbulence and fuel-air mixing.

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