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Numerical Investigation of the Effect of the Spark Plug Gap on Engine-Like Conditions

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Abstract : The objective of this research is to analyze the effects of different spark plug conditions in engine-like conditions by applying computational fluid dynamics analysis. The 3D models applied consist of 3-Zones Extended Coherent Flame (ECFM-3Z) and Imposed Stretch Spark Ignition Model (ISSIM), respectively, for the combustion and the spark plug modelling. For this study, it was applied direct injection fuel system in a single cylinder engine operating with E0. The application of realistic operating conditions (load and speed) to the different cases studied will provide a deeper understanding of the effects of the spark plug gap, a result of parts outwearing in most of the cases, to the development of the combustion in engine-like conditions.

Keywords : engine, CFD, direct injection, combustion, spark plug
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