عنوان مقاله:

Simulation of Dual Fuel Combustion of Direct Injection Engine with Variable Natural Gas Premixed Ratio

محل انتشار:

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خلاصه مقاله:

Nowadays, the major challenge of diesel engines development is simultaneous nitrogen oxides and soot emissions reduction without the thermal efficiency drop. Hence, different combustion concepts should be investigated to reach optimum emission and performance conditions in diesel engines without expensive aftertreatment systems. This paper presents the results of a study on a dual fuel (DF) engine including natural gas and diesel fuel in view of combustion and emissions parameters. The current investigation also supports by 3D-CFD simulation coupled with the chemical kinetics mechanism for detailed investigation. Based on the results, increasing the premixed ratio of natural gas from 50% to 90% causes the combustion shifts toward the expansion stroke. Therefore, the in-cylinder pressure and combustion efficiency decreases. In 90% premixed ratio of natural gas, the non-combustion condition .can be observed. This phenomena leads to extremely increase in HC and CO emissions

کلمات کلیدی:

CFD Simulation, Double Injection, Gas Percentage, Natural gas, Diesel fuel