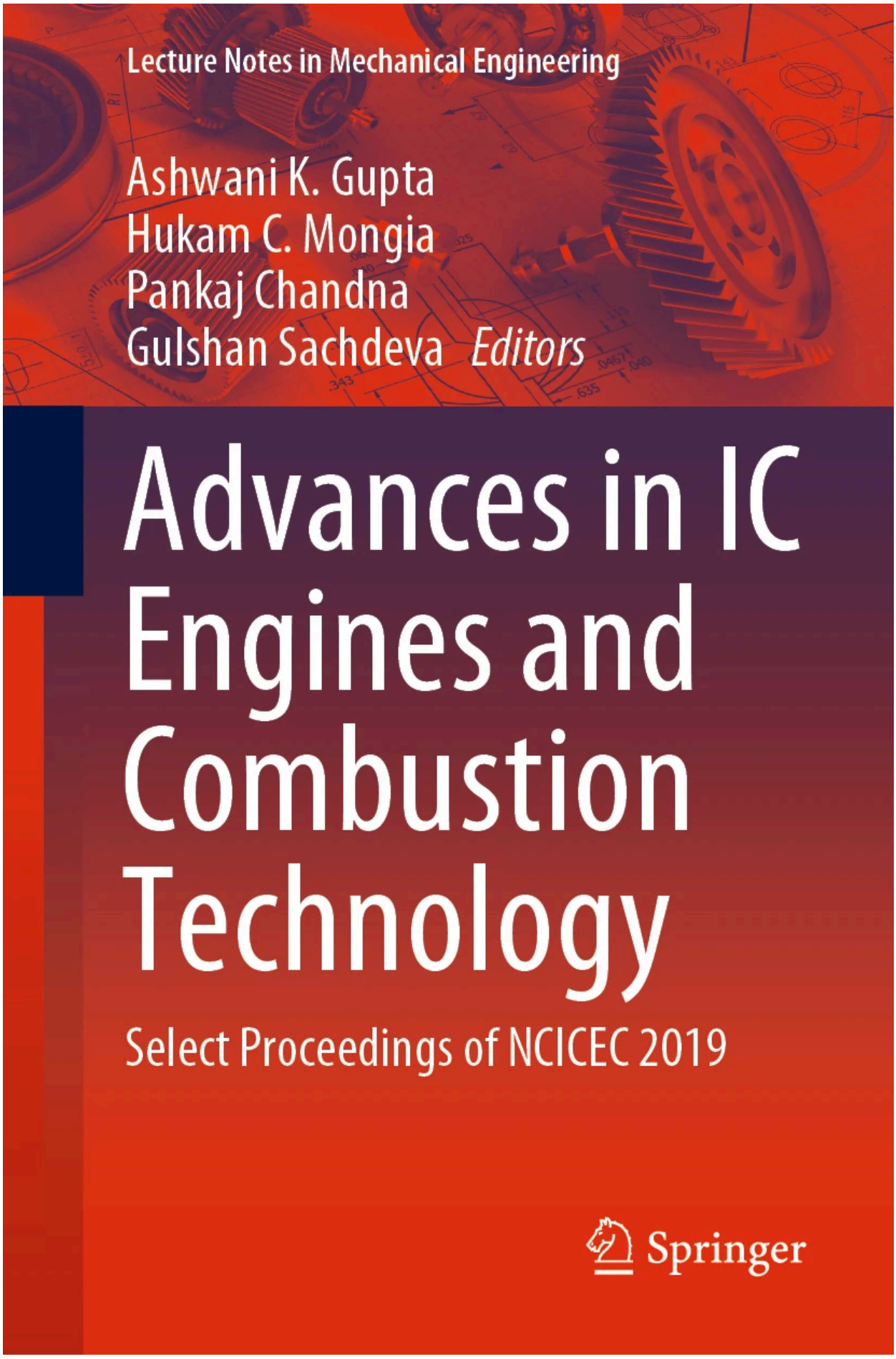
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Effect of Static Ignition Timing on the Emission and Performance Characteristics of a Four-Cylinder MPFI Engine Fueled by LPG

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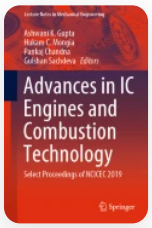

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Abstract

The present work aims on the experimental analysis of static ignition timing on MPFI gasoline engine with LPG as an alternative fuel. Four-cylinder MPFI engine setup is used with gasoline, 25% LPG, 50% LPG, 75% LPG, and 100% LPG fuel for different static

ignition timing of 5, 8 and 11 deg. bTDC at full load and different speed conditions. The results have shown that 100% LPG is a better fuel on than other blends because of its lean combustion characteristics when compared with gasoline. Excluding NO_x emission, 100% LPG shown better emission and performance characteristics at static ignition timing of 8 deg. bTDC. By advancing the static ignition timing, engine will work leaner side hence reduction in the fuel consumption and increase in the brake thermal efficiency are obtained. As the ignition timing is advanced, volumetric efficiency increases for all fuel conditions because of engine will work in leaner side. There is a positive effect on CO emission when static ignition timing advanced but slightly increased HC emission is obtained. But 100% LPG has shown lesser CO and HC emission when related to gasoline. Also, advancing the static ignition timing will result in higher NO_x emission.

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