



**“Gheorghe Asachi” Technical University of Iasi, Romania**



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## **EFFECT OF THE INCYLINDER FORCED SWIRLS ON PERFORMANCE AND EMISSION OF DIESEL ENGINE**

**Chang-Yuan Wang<sup>\*</sup>, Fu-Shui Liu, Xiang-Rong Li**

*School of Mechanical and Vehicular Engineering, Beijing Institute of Technology, Beijing, China*

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### **Abstract**

The combustion process plays the important role to improve performance and emission of diesel engine. To improve the rate of combustion process, the fuel-air mixing process should be accelerated. In this paper, based on the Double Swirl combustion chamber, from the macroscopic characteristics and simulation analysis, the effect of the incylinder forced swirls on performance and emission of diesel engine was studied. The results indicated that due to the incylinder forced swirls, the distribution of fuel concentration is more uniform, and the combustion process was improved. The performance of indicated heat efficiency in diesel engine had been increased by 2%, and the NO and soot emissions had been also decreased by 2% and 35% respectively.

*Key words:* forced swirl, combustion chamber shape, diesel engine performance, diesel engine emissions

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<sup>\*</sup> Author to whom all correspondence should be addressed: e-mail: wang\_jack1983@sina.com