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Ismail M.M. Elsemary, Ahmed A.A. Attia, Kairy H. Elnagar, Ahmed A.M. Elaraqy

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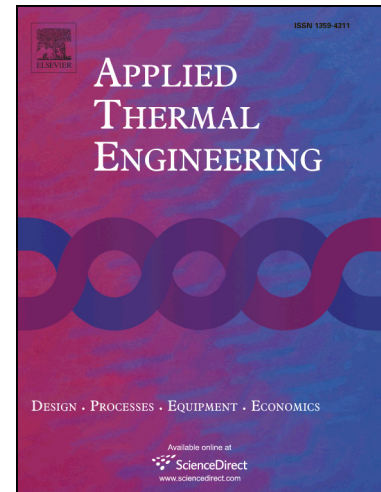
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# Experimental Investigation on Performance of Single Cylinder Spark Ignition Engine Fueled with Hydrogen-Gasoline Mixture.

Ismail M.M. Elsemary<sup>1</sup>, Ahmed A. A. Attia<sup>2</sup>, Kairy H. Elnagar<sup>3</sup>, Ahmed A. M. Elaraqy<sup>4</sup>

<sup>1</sup>Email:i.semery@feng.bu.edu.eg<sup>2</sup>Email:ahmed.attia@feng.bu.edu.eg<sup>3</sup>Email:khairy.alnagar@feng.bu.edu.eg,

<sup>4</sup>Email:araqy2012@yahoo.com

Combustion and Energy Technology Lab, Mechanical Engineering Department, Shoubra Faculty of Engineering,  
Benha University, 108 Shoubra Street, Cairo, Egypt

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## Abstract

In the following an experimental investigation on a single-cylinder four-stroke spark ignition engine operating with gasoline was performed to study the effect of hydrogen addition to fuel on its performance and emissions. The hydrogen was inducted in the air inlet manifold with different volume ratios 24%, 26%, 27%, 28%, 29%, 31%, 35%, 37%, 49% percentage of total intake volume. The combustion analysis was carried out for different percentage of hydrogen additions. The results show that due to the rapid rate of burning of gasoline-air mixture with the addition of hydrogen leading to increase in cylinder pressure. The engine test the performance show an improvement in thermal efficiency as well as reduction in brake specific fuel consumption. The emission analysis shows a reduction in unburned hydrocarbon (HC) and carbon monoxide (CO). Finally, using Hydrogen blended with gasoline showed an improvement in efficiency and environmental benefit.

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**Key words:** Hydrogen, Dual Fuel Engine, Spark Ignition Engine, emission, thermal efficiency.

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## INTRODUCTION

During the last decade, the use of alternative fuel in internal combustion engines has received great attention. The uncertainty of petroleum-based fuel availability has created a need for alternative fuels [1]. A lot of research studied improving fuel economy and reducing exhaust

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