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**GASOLINE DIRECT INJECTION: COMPARED TRENDS AND STRATEGIES IN BASE  
ON ADVANCED CONCEPTS**

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***Abstract:** The potential of spark ignition engines regarding a favorable power characteristic for low bsfc and pollutant emission is strongly dependent on the combustion process and consequently on the quality of the fuel/air mixture. The internal mixture formation -by direct injection- offers a larger improvement range than the external mixture formation - by carburetor or injection into the intake ducts. However, the effectiveness of such concepts depends on the capability of the applied injection technique to adapt the fuel spray characteristics to the thermodynamic conditions within the combustion chamber, which changes with load, speed and surrounding state. The following analysis of advanced injection concepts intends to give an overview of the most advantageous configurations and applications.*

***Key words:** Mixture Formation, Gasoline Direct Injection*

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