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عنوان مقاله:

A new approach for thermal analysis of Stirling Engine for Exhaust Waste Heat Recovery in System Ignition engine

محل انتشار:

اولین کنفرانس پیشرفت های اخیر و روندهای آینده در صنعت خودرو (سال: 1399)

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خلاصه مقاله:

In this study, heat recovery analysis from exhaust gases of SI engine by Stirling engine is performed. A new method is presented to evaluate the output power and efficiency of real Stirling engines. In this method, correcting functions are applied on the Schmidt equations to achieve more accurate results with respect to the adiabatic model. This approach eliminates the numerical procedures as well as the iterative solver. It is also able the results to achieve more accuracy with open-form solution. A non-linear regression is performed on the Schmidt equations to achieve the correctness factors. The correctness factors are function of structural and operational characteristics of the Stirling engine. The results show that, by installing a Stirling engine heater on the exhaust tube of SI engine 8 kW of the waste energy can be recovered in the best condition. Also, the coupled cycles enhance thermal efficiency about 4% more than ordinary .one

کلمات کلیدی:

Stirling engine, Heat recovery, Thermal analysis, SI engine, non-linear regression

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