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Abstract

DESIGN AND CONTROL OF AN  
ELECTROMECHANICAL VARIABLE ROTARY VALVE  
SYSTEM FOR FOUR-STROKE ENGINES

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Study on rotary valve system (RVS) for automotive engines has been carried out over many years. Recent researches have already successfully implemented the idea, but none of design can provide variable valve timing and flow area control. Therefore, a RVS with variable valve control system is proposed. The system design and control are presented in the thesis. Moreover, the selection of the proportional, integral and derivative (PID) controller parameters for the valve control based on an emerging artificial intelligent technique, Genetic Algorithms (GA), is also discussed. Experimental and simulation results show that the proposed tuning method is better than the traditional Ziegler and Nichols method, and the proposed RVS is feasible.