

Abstract Submitted
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Internal Combustion Engine Flows¹ AMY MCCLENEY, Embry-Riddle Aeronautical University, PAUL PUZINAUSKAS, KENDRICK GIBSON, University of Alabama — An automobile engine's performance can be enhanced by a more complete combustion reaction which results in less fuel consumption and lower emissions. The combustion improvement can be accomplished through an increase in turbulence from tumble flow, a circulatory motion inside the cylinder. In previous research, this increase is created by changing the intake ports on the engine so the flow is more precisely directed in the cylinder. In this study, the following three experiments were conducted: a detailed vane characterization experiment to direct the flow; a study of the effect of the piston shape on the flow; and a seeding settling experiment to determine experimentation quality. These experiments offer insight into the flow structure inside the test cylinder, as observed using particle image velocimetry and impulse swirl meter testing.

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Amy Lang
University of Alabama

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