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**New equipment investigates flame and ignition characteristics of renewable and alternative fuels**

Two members of the Michigan State University Department of Mechanical Engineering have designed and constructed a constant volume combustion chamber for use in MSU’s Alternative Fuels and Combustion Lab. The lab is in the Engineering Research Complex (ERC) on the south end of campus.

The work was recently completed by PhD student Berk Can Duva and his adviser, assistant professor Elisa Toulson. Duva is a researcher from Ankara, Turkey. His interests are in laminar and turbulent flames, ignition characteristics, and flammability limits.

Duva said the equipment investigates combustion characteristics of potential renewable and alternative fuels for internal combustion engine and gas turbine applications.

Toulson added it also allows for the investigation of laminar flame speeds.

“The equipment enables optical observation of outwardly propagating spherical flames in order to measure laminar flame speeds. Laminar flame speeds are a significant global parameter for combustible mixtures,” she said.

“They indicate the reactivity, exothermicity, flame shape and flame-stability characteristics,” she continued. “Experimental laminar flame speed results are widely used for the validation of chemical mechanisms and for turbulent flame studies.”
Related Website: Communications contact: Patricia Mroczek

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