# Abstract Form

**Title of Thesis** : Prediction of ignition delay using data driven framework .

**Abstract of Thesis** :

Ignition delay has an important role in combustion. Ignition delay is affected by different parameters such as temperature, pressure, Equivalence ratio, etc. The objective is to predict ignition delays of fuels based on the molecular structure and the aforementioned parameters. Ignition delay is generally computed using non-linear coupled, species and energy equation. This procedure is computationally costly and difficult to calculate due to high time-scale difference. Empirical Ignition delay equations are fuel-specific and constrained to physical conditions which are also a culprit of uncontrolled uncertainty. Using the machine learning framework an attempt is made to predict the ignition delay.

**Keywords** : Combustion, Ignition delay, Machine Learning, Scientific Computing, Surrogate Fuel

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