

## **Large Eddy Simulation of Soot Formation in an Oxy-coal Combustor**

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Large eddy simulation (LES) of a 100 kW coal-fired oxy-fuel combustor is presented. Oxy-coal combustion is a promising technology for carbon capture in coal-fired power plants. The combustor is a 1.7 m long, 0.6 m diameter, down fired unit. We compare simulation results to experiments including heat flux, temperature, and exit compositions. Soot formation in coal combustion is important for accurate capture of radiative emission and flame temperatures. Soot formation is modeled using a method of moments. We present results of a coal soot model, and uncertainty quantification of key soot rate parameters and representation of the particle size distribution.