- Abstract
- Introduction
  - General coal information
  - Why we are interested in simulating soot
  - Previous Work
    - LES coal simulations without soot
    - Simulations with soot
      - Xu et al (LES)
      - Takahashi et al (LES)
      - Brown simulation (RANS)
- Model Description
  - Soot modeling
    - Brown model
    - Mono model
      - Include equations? (no)
    - MoMIC model
  - Computational tools
    - Arches overview
    - Models used
      - Devolatilization
      - Char Oxidation
      - Radiation
      - Dynamic Smagorinsky
      - DQMOM
- Simulation Details
  - Case list
  - Coal properties
  - Experimental setup
    - Reactor geometry and picture
    - Stream properties
- Results and Discussion
  - General simulation results and observations
  - Compare simulation with experiment
    - Temperature
    - Soot
    - Mass fractions
  - Compare with Sootless case
    - Temperature
      - Richness theory
    - Soot volume fraction
    - Other variables
- Conclusions

Intro
- Motivation
- previous work / Lit Rev.
- what we're doing
- Describe Stimpson.
- outline of the paper.

Model Description.
- Arches
  - Coal Description
    - DQMOM
    - Rate models
      - Char oxid
      - Devol
  - Radiation
    - DoM
    - properties
      - Gas
      - Coal
      - Soot.
  - Dyn. Smag.
  - Numerics
    - Grid
    - finite Differencing.
  - Low Mach.
  - Wall treatments.
  - Soot models.

(order ~)

Sim. Details.
- Reactor Geometry.
- Grid
- Streams (comp, flow).
- Coal properties
  - Ultimate, proximate, HHV
- Case list

Results.
- ~~Time~~ trace to SS.
- General → Detailed.
- Items
  - Means: T, Y, Tar, Soot, Vel, etc.
  - Exp Comp: T, Soot.
    - T.C. correction here or in Model
  - Radiation / heat flux.
  - Soot / no Soot / no Coupling

Conc. / Refs