COMBUSTION RESEARCH FACILITY

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Understanding the complexities of enhanced oxygen, high temperature pulverized coal char combustion

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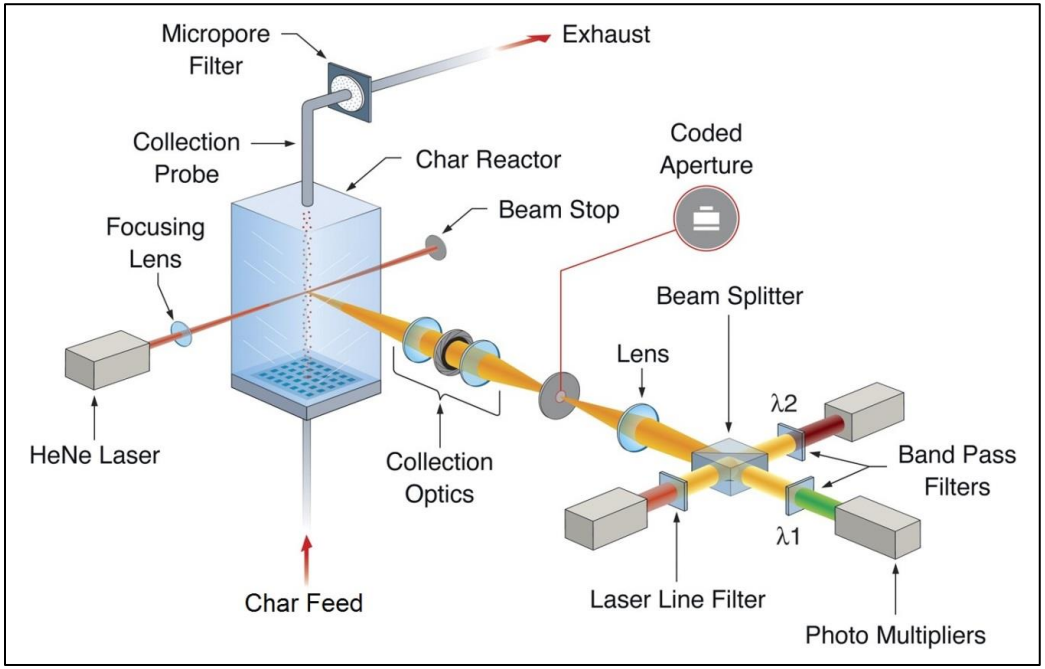
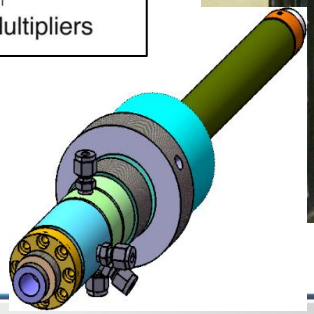
A suitable working fluid for MHD power generation requires high ion conductivity

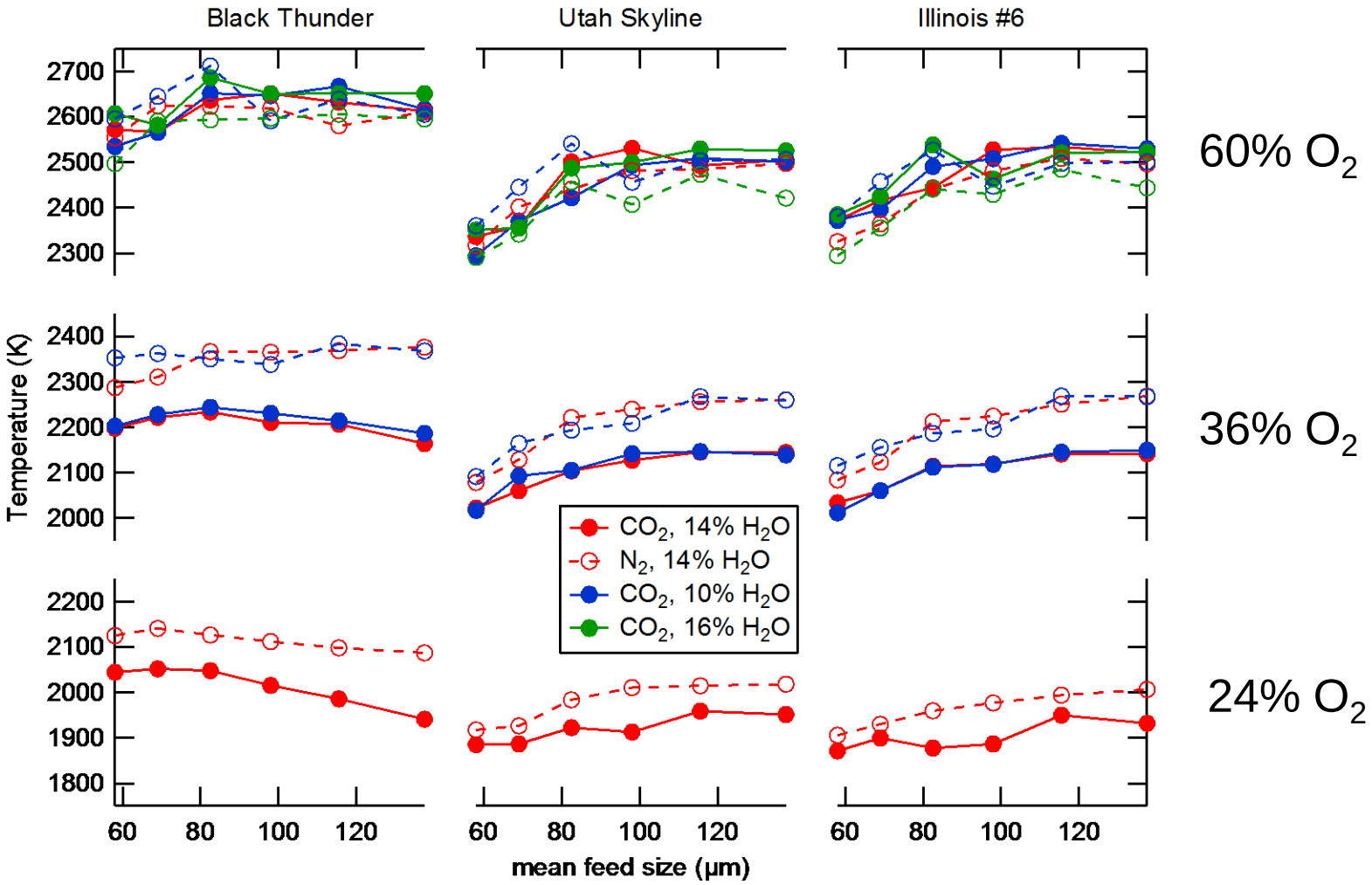
- Ion conductivity in gases can be achieved through a combination of high temperatures and alkali metal seeding
- High temperatures can be reached through the combustion of pulverized coal with elevated concentrations of oxygen
- We have studied enhanced oxygen combustion of coal for more than 10 years and have extensive experience with single particle reaction models
  - Two experimental platforms
  - Experience with detailed pc reaction modeling and development of accurate, simplified models for CFD applications

Two entrained flow reactors have optical access for in-situ measurements of particle temperatures (essential for quantifying the contributions of oxidation and gasification reactions)

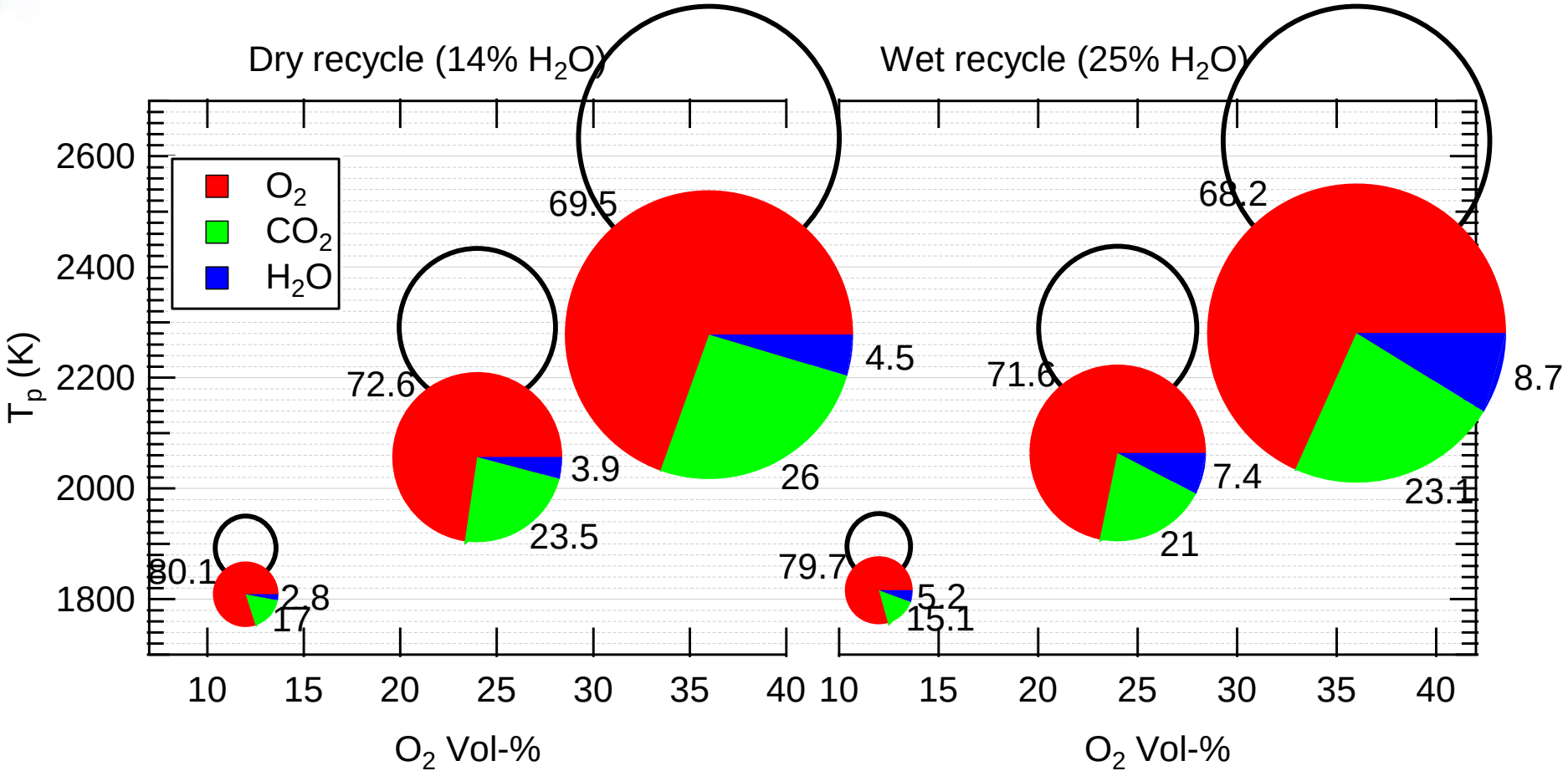




We have studied coal char combustion in environments up to 60% oxygen



Gasification reactions become increasingly important under oxygen enriched conditions



Stop by the poster for all of the details!

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