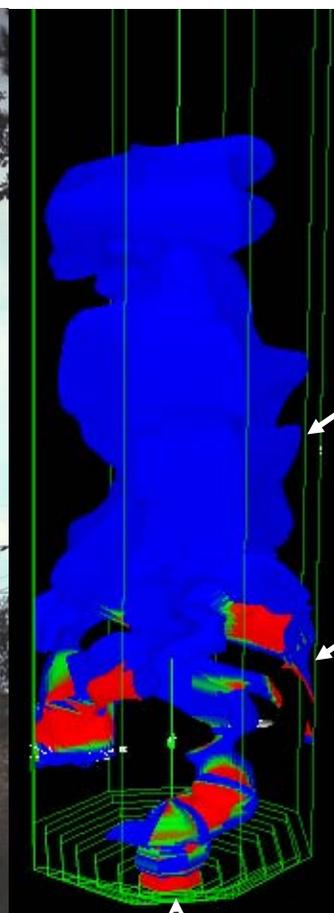# *CMFR Workshop, June 6-7, 2006*

MFIX simulation of KBR commercial scale transport gasifier – solids volume fraction isosurfaces colored by oxygen mass fraction

Coal

Recycled Char

Air/Steam

Vision

Ensure that by 2015 multiphase science based computer simulations play a significant role in the design, operation, and troubleshooting of multiphase flow devices in fossil fuel processing plants.

DRAFT 0.2/M. Syamlal

Workshop Objectives

- **Discuss outstanding research problems in computational multiphase flow applicable to fossil fuel processing**

- **Develop an emerging technology roadmap for computational multiphase flow**

- **Develop the plans for a collaboratory based that roadmap**

Workshop Outcome

- **Emerging technology roadmap for computational multiphase flow**

- **Planning document for a Collaboratory on Multiphase Flow**

Workshop Benefits

- **Main benefit**
  - Reduce the time to develop advanced fossil fuel technologies by using computational multiphase flow

- **Corollary benefits**
  - Improve the visibility of multiphase flow research
  - Influence future research solicitations
  - Promote collaborations among the participants
  - Technology transfer
  - Education and training

Technology Roadmap

- **Identifies a *need or needs* to be fulfilled *(destination)***

- **Establishes the baseline from which efforts will proceed *(starting point)***

- **Provides guidance on the potential pathways and milestones along those pathways that could lead to fulfillment of the need *(routes to get from the start to the destination)***

Nichols 2005

DRAFT 0.2/M. Syamlal

Roadmapping process

- **Phase I. Preliminary activity**
  1. **Satisfy essential conditions.**
  2. **Provide leadership/sponsorship.**
  3. **Define the scope and boundaries for the technology roadmap.**
- **Phase II. Development of the Technology Roadmap**
  1. **Identify the "product" that will be the focus of the roadmap.**
  2. **Identify the critical system requirements and their targets.**
  3. **Specify the major technology areas.**
  4. **Specify the technology drivers and their targets.**
  5. **Identify technology alternatives and their time lines.**
  6. **Recommend the technology alternatives that should be pursued.**
  7. **Create the technology roadmap report.**
- **Phase III. Follow-up activity**
  1. **Critique and validate the roadmap.**
  2. **Develop an implementation plan.**
  3. **Review and update.**

Garcia and Bray 1997