



WHAT STARTS HERE CHANGES THE WORLD

THE UNIVERSITY OF TEXAS AT AUSTIN

Project Update

D. Fuentes

**Institute for Computational Engineering and Sciences
The University of Texas at Austin**

Austin, Texas

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Outline

- **Phantom**

 - ▷ *Registration*

- **Live Demo**

- **Phantom Results and Error Estimate Results**

- **Needed Model Improvements**



Phantom Registration

- Using ITK for Registration.
- www.itk.org
- **Currently have capabilities for rigid body registration**
 - ▷ *This works well for the phantom*
 - ▷ *Need non-rigid registration for a deformable organ???*



Computation Speed

- Memory: DDR2-533
- effective clock speed 1066 Mhz
- 8 bytes of data per transfer
- Memory Bus 8.5 GB/s peak performance (10.7GB/s Front Side Bus)
- Upper Bound for max is ≈ 1 GFlops
- Seeing ≈ 500 MFlops in element routines



Current Capabilities

- Data Transfer Infrastructure Complete
- Visualization Infrastructure Complete
- Inverse Problems And Error Estimates For Isotropic, Non-linear, Homogenous Pennes Model
- Multiple MPI Groups
 - ▷ *1 Data Server*
 - ▷ *1 Control Task accumulates all updates*
 - ▷ *N Write Tasks*
 - ▷ *N Sets of Compute processors for calibration, optimal control, error estimate, etc .*



Needed Model Improvements

- Non-Rigid Registration
- Material Heterogeneity
- Non-isotropic laser source term

