

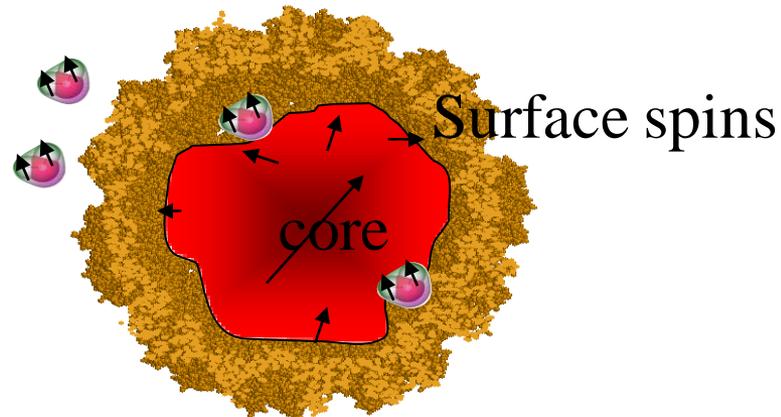


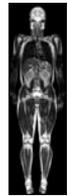
Quantitative MRI Phantoms & Biomimetic Nanoagents

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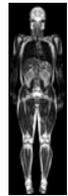
NIST, Boulder, CO





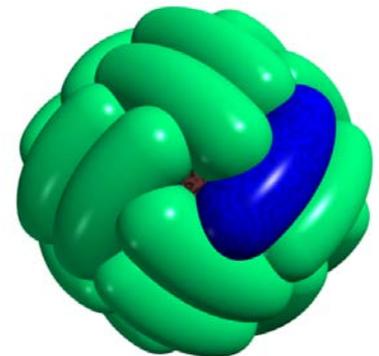
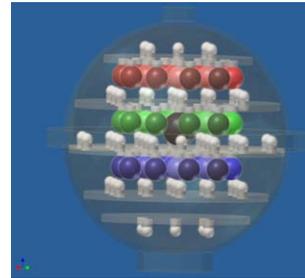
Program Goals

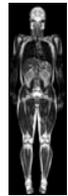
- ❖ Ensure that quantitative measures derived from MRI data are comparable over time, between subjects, between sites and between vendors.
- ❖ Develop multifunctional magnetic nanoagents based on biomimetic concepts
- ❖ Develop measurement systems to count/manipulate nanoparticles used as viral surrogates



Technology

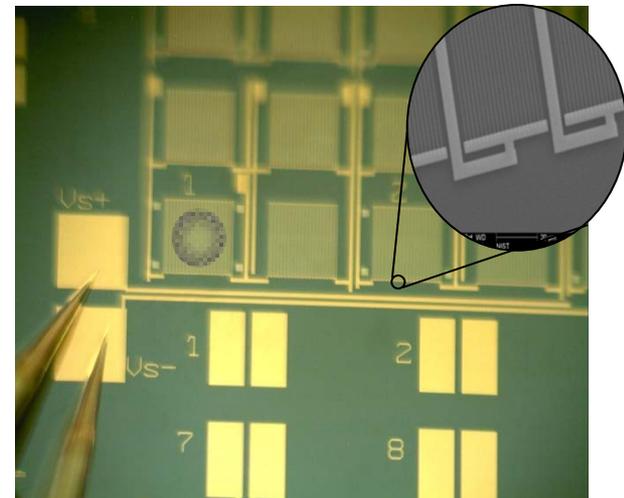
- ❖ Develop accurate imaging reference samples
 - ❑ MRI system phantom
 - ❑ Application specific phantoms for DCE-MRI, Diffusion weighted MRI, Susceptibility phantom
- ❖ Develop and maintain chemico/physico database for MRI materials
- ❖ Develop agents based on mineralized/functionalized protein cages
- ❖ Develop magnetic bioassay sensors





Technology Applications

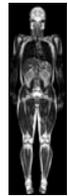
- ❖ Develop calibration samples to assure consistency of quantitative imaging in drug trials
- ❖ Assist in quantitative Fe mapping for neurological disease studies
- ❖ Develop biocompatible nanoagents that provide imaging and additional functionalities
- ❖ Develop magnetic nanoparticles for viral surrogates: Real time monitoring of water/air filtration integrity
- ❖ Validation of pharmaceutical filtration and purification techniques
- ❖ Detect magnetically labeled cells





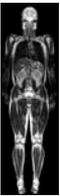
Commercial Applications

- ❖ NIST will assist in the development of phantom specifications and components
- ❖ Multifunctional biocompatible agents



Collaboration Opportunities

- ❖ Seek collaborators to co-development application specific phantoms (presently working with NINDS and University of Colorado Health Sciences Center)
- ❖ Seek collaborators requiring viral surrogates and magnetic nanoagents based on biomimetic structures



Contact Information

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