

ISTeC (Information Science and Technology Center) Research Advisory Committee
 Retreat on the Scientific and Engineering Foundations of Information Science and
 Technology
 Saturday, May 8, 8:15am to 3:00pm, Lory Student Center

DOSSIER

Name: Martin Gelfand	
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Research Interests (one paragraph): Condensed matter and computational physics, broadly, with experience in strongly correlated systems, superconductivity, statistical mechanics, disordered electronic systems. Computational approaches have included “brute force” (exact diagonalization for finite quantum systems), perturbation theory, density-functional theory.	
Titles of current research projects (funded or not):	
Current collaborations inside and outside your department: I have been working recently with Stuart Field (Physics) on questions concerning vortices in superconductors and have been carrying out electronic structure calculations for materials that Dieter Hochheimer (Physics) has measured properties of.	
Breakout sessions you would like to attend at the retreat (please rank order from 1 to 3):	
3	Alternative models of computing [I'm not entirely sure what this refers to: Quantum computing? FPGAs? Ubiquitous computing?]
1	Computing and information processing in support of basic science and engineering
	Dense sensor networks
2	Imaging and tracking
	Automatic image, text, and speech recognition for multimodal interfaces and search engines
	Other (Please suggest a title.)

Faculty at CSU whom you would like to see included into your preferred breakout group:

Folks with interests in “difficult” computational problems, e.g., unstable inverse problems, optimization on rough landscapes; in distributed computing; in teaching (with) numerical computation. Or were you looking for names...? I know pretty well what is going on in my own department (or at least I like to think I do!), so I don't need to be a group with Physics faculty.

One optional paragraph you would like other participants to read before the retreat: If this retreat is going to have any real impact, I believe we'll need to both think big and start small. With regard to the latter, what problems are you facing right now, where at least a sounding board (if not more) would be helpful? For my part, I'm thinking about modifying a large application (that I didn't write myself) to take advantage of COGrid or other distributed computing resources, and about teaching students (particularly undergraduates) to use computers effectively as computational tools.