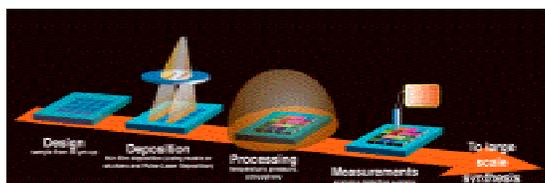
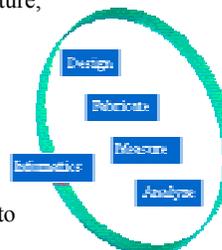


Growing Impact

- Combinatorial methods have revolutionized the process of pharmaceutical discovery.
- Now, materials scientists are applying the same approach to accelerate discovery and application of new materials.
- Chemical and Engineering News* asks: Are combinatorial methods “Redefining the Scientific Method for Discovery”?

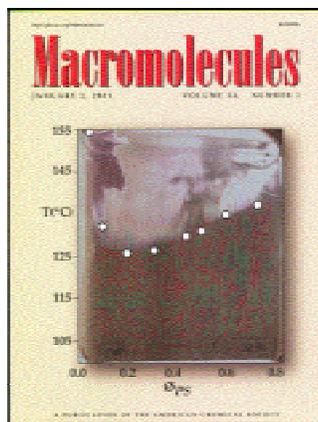
The Combinatorial Cycle

- Design- Define sampling of parameter space (Molecular structure, Composition, Morphology, Processing)
- Fabricate- Synthesis and creation of samples (Continuous gradients, Split and pool, Small/Discrete samples, Patterning)
- Measure- Characterize materials, discriminate performance (Screening hits, Comparative performance, Quantitative data)
- Analyze- Analysis from massive data sets to information and to knowledge (Data management, Visualization, Data mining, Development of predictive models)



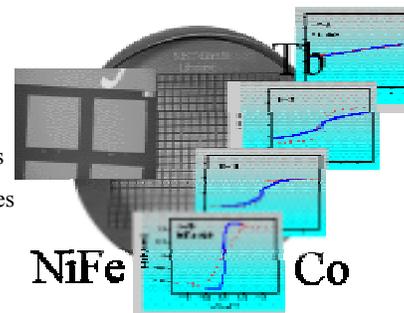
Polymers

- Polymer blend phase behavior
- Biocompatibility assay
- Adhesives
- Surface chemistry and modification
- Semi-crystalline polymers
- Block-copolymer ordering behavior
- Fire retardants
- High-throughput measurements
- Library production support
- Laser scanning microscopy



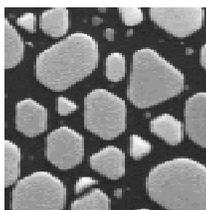
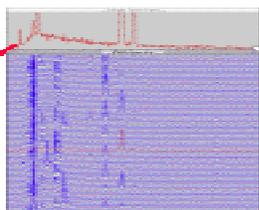
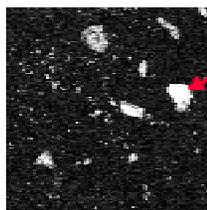
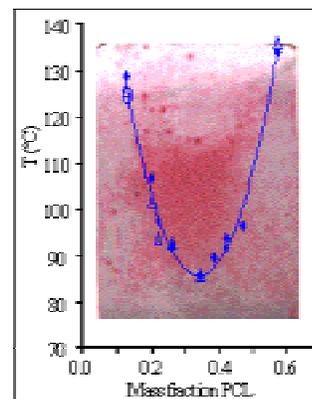
Metals and alloys

- Dielectric oxide thin films
- Metallization of GaN semiconductors
- TEM studies of combinatorial libraries
- Polarized light scattering



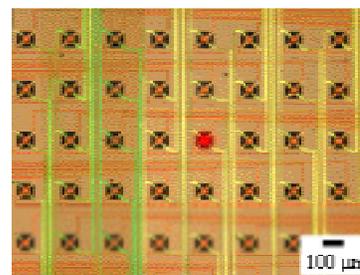
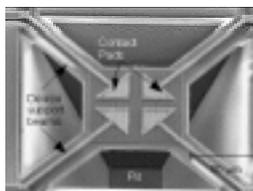
Biomaterials

- Biocompatibility assay
- Surface Hydrophobicity
- Bio-adhesion
- Cell growth and differentiation
- Patterned cellular activity



Chemical Analysis

- Chemical microscopy by SIMS
- Data mining: Searching for patterns
- Quantitative spectral imaging
- Infrared chemical imaging



Thermal Properties

- Service life prediction
- Microhotplate array platforms
- Modeling and characterization