Applied Nanotechnology

The promise of nanotechnology draws on inspiration from nature: the self-assembling DNA molecule, the nano-textured, self-cleaning surface of lotus leaves, and the kaleidoscope of colors that are micro-patterned on a butterfly's wings.

What we offer

Our range of nanotechnology expertise is diverse – from material synthesis and processing, to scale-up development and supply – we can help you accelerate the development of your nanotechnology requirements.

Example: Emulsion Aggregation Technology

XRCC's Emulsion Aggregation (EA) technology is a bottom-up chemical process for making toner. EA technology uses controlled assembly of nanoscale polymer droplets to prepare precision-designed and tailored toner particles, which provide sharper, higher-resolution images using less toner per page. Today this technology is used in over 20 Xerox printers and copiers.

Benefit to you

The distinct physical, chemical and biological properties of materials on nanometer size scales hold much promise for delivering superior performance in many future commercial products.

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Designer Nanoparticles

Low-cost 'bottom-up' synthesis methods to prepare processable designer nanoparticles including:
- Colloids
- Core-shell
- Sol-gel
- Metal
- Metal oxide

Nano-Textured Surfaces

- Textured surface design
- Nanocomposite coating dispersions
- Super-hydrophobic layers
- Wear-resistant surfaces

Organic Nanopigments

- Organic nanopigments
- Scaleable low-cost synthesis
- Dispersible into liquid or solid formulations

Printable Electronic Materials

- Nanoconductive particles and inks
- Organic semiconductor materials and inks
- Dielectric materials and inks
- Chemically self-assembling systems
- Exceptionally stable, high-performance formulations

Wet Nanoparticle Synthesis

- Designer polymer colloids
- Metals, metal oxides
- Organic pigments & additives
- Magnetic nanoparticles
- Sol-gel synthesis
- Optical effect materials

Nano-engineered Surfaces and Coatings

- Textured surfaces
- Anti-wetting / anti-fouling coatings
- Wear-resistant nanocomposites
- Self-protected / Self-healing coatings

Controlled / Self-Assembled Nanostructures

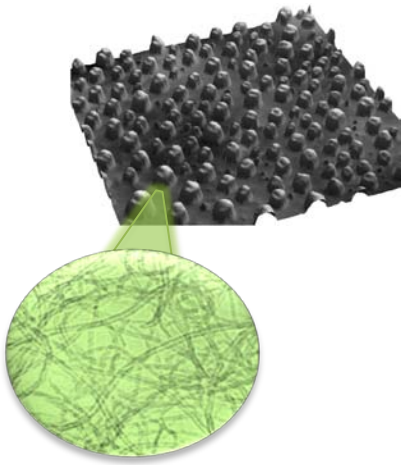
- Supramolecular materials
- Organogels, nanofibers
- Templated materials
- Inorganic oxide nanostructures

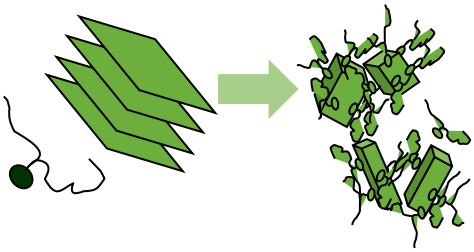
Nano-enabled Processes

- Nano particle stabilization (dispersion) of pigments, carbon nanotubes, nanofibers, etc.
- Nano-inks
- Microreactor technology
- Electrospinning

Characterization and Testing

- Microscopy (SEM, Cryo-TEM, EDX, EPS)
- Powder x-ray diffraction
- Dynamic light scattering
- Zeta potential
- Surface tension / Contact angle
- Nano-indentation
- Electronic devices
- Magnetic remanence and susceptibility
- Time-of-flight charge transport
- Impedance spectroscopy





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