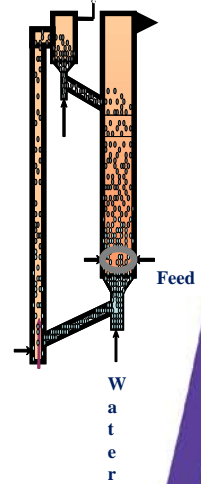
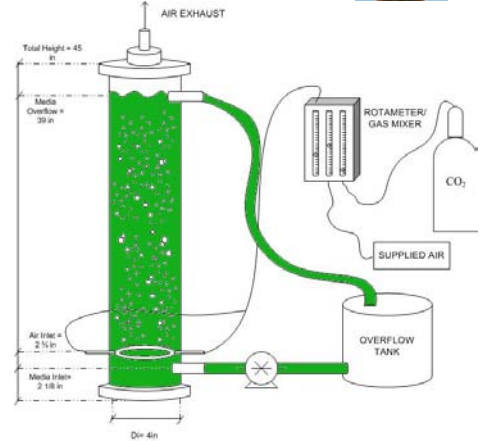
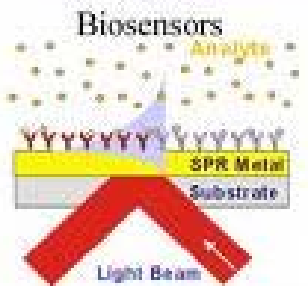
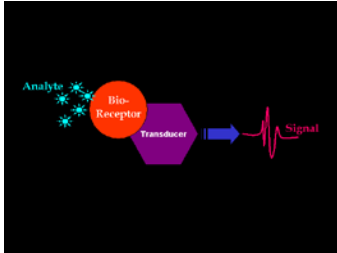


Dr. Amarjeet Bassi

Biochemical Engineering Research

- microalgae for bioenergy
- enzymes in green processing
- biosensors
- bioseparations

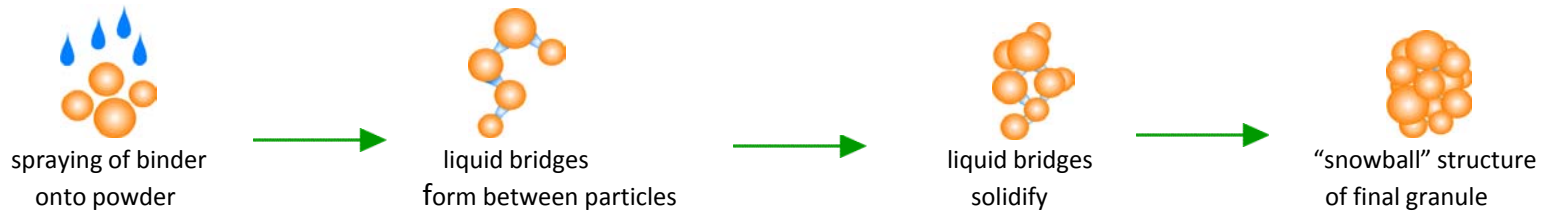


Dr. Lauren Briens

Our research focuses on improving the downstream manufacturing of pharmaceuticals.

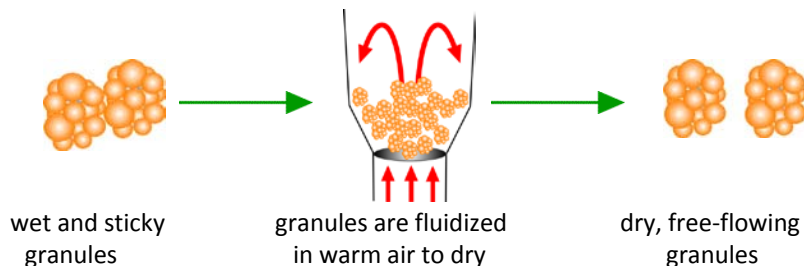
GRANULATION

Granulation is the process in which particles are adhered together with a liquid binder to form multi-particle units called granules. Granulation prevents particle segregation and improves flowability and compaction characteristics. Research on this manufacturing step is conducted in collaboration with GlaxoSmithKline and focuses on the development of passive acoustic emission monitoring.



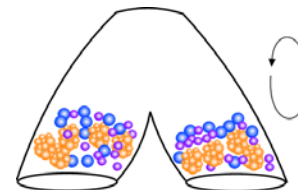
DRYING

Wet granules must be dried before tableting. Our research examines the effect of operation parameters and develops on-line monitoring methods.



MIXING

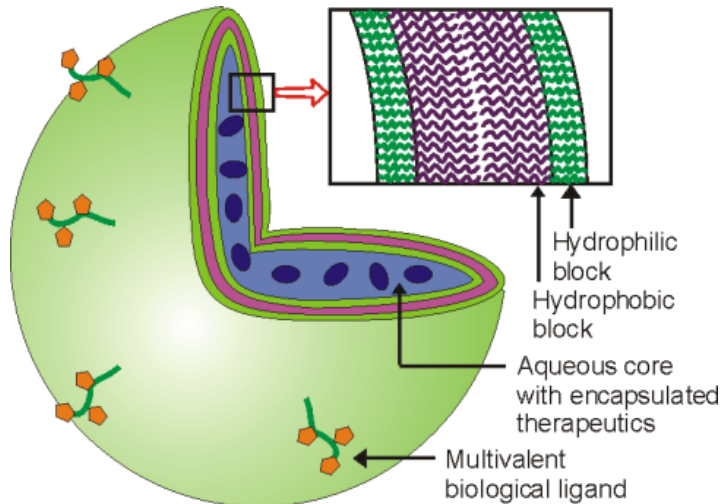
Powders must be properly mixed before compressed into a tablet to ensure that the tablet contains the correct amount of drug.



Dr. Beth Gillies

Polymer Vesicles

- Supramolecular assemblies of amphiphilic polymers
- Nanocontainers for encapsulating drugs (eg. proteins, DNA, small molecules) and contrast agents for medical imaging



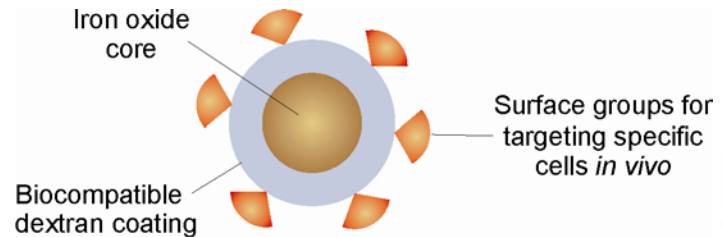
We focus on:

- New synthetic strategies to functionalize their surface in order to control their targeting *in vivo*
- New biodegradable polymers that will allow vesicles to release their contents at specific locations *in vivo*

The Gillies Group

Contrast Agents for MRI

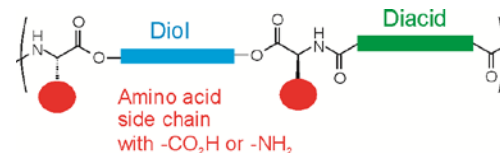
Superparamagnetic iron oxide nanoparticles (SPIO) to label and track cells



Functionalization of surfaces of nanoparticles to target and image cells

Biodegradable Polymers for Tissue Engineering and Drug Delivery

Poly(ester amide)s provide biodegradability and functional handles for the conjugation of drugs and cell signals

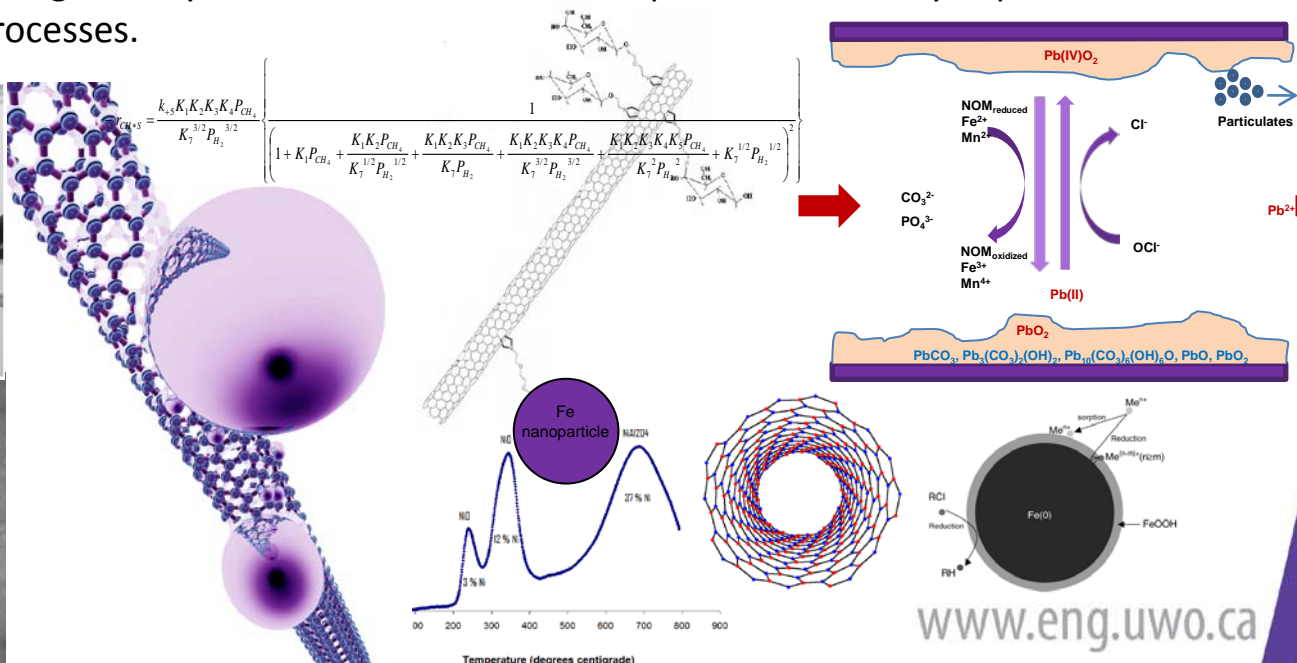
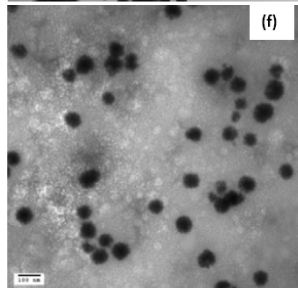
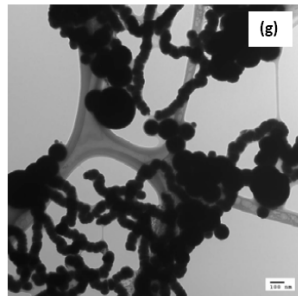


Collaboration with Dr. Kibret Mequanint
Chemical and Biochemical Eng., UWO

Dr. Jose Herrera

Research in Functional Nanomaterials

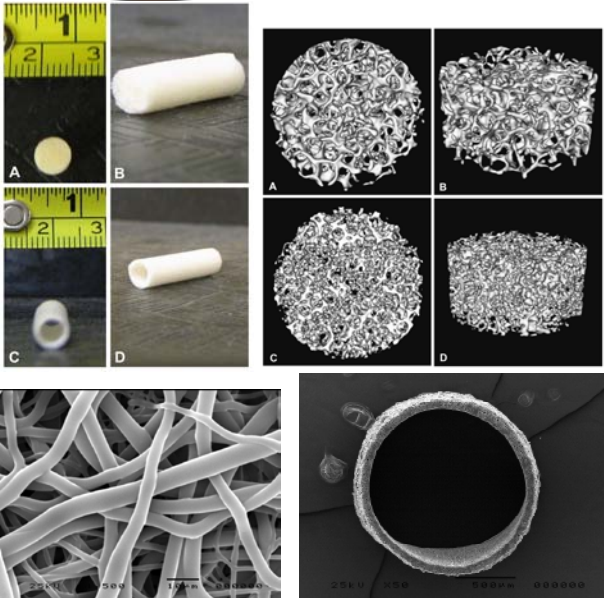
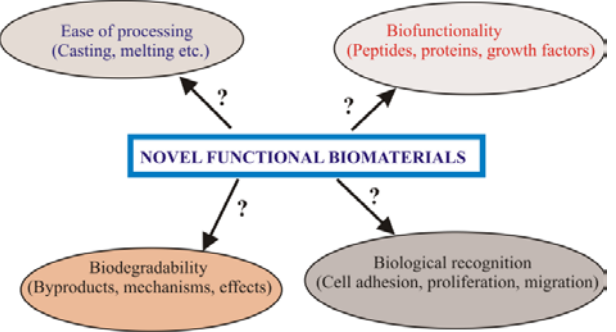
- Synthesis and surface modification of zero-valent iron nanoparticles for subsurface remediation.
- Development of new generation of hybrid nanomaterials based on carbon nanotubes for environmental remediation.
- Evaluation and modeling of water aggressiveness and corrosiveness toward lead plumbing in the drinking water distribution system of the City of London.
- Molecular design and synthesis of metal oxide nanoparticles for catalytic partial oxidation processes.



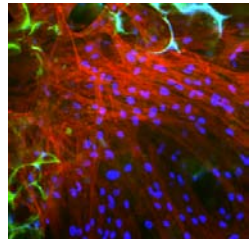
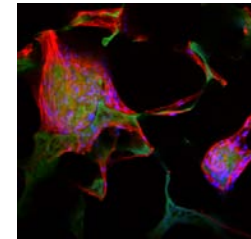
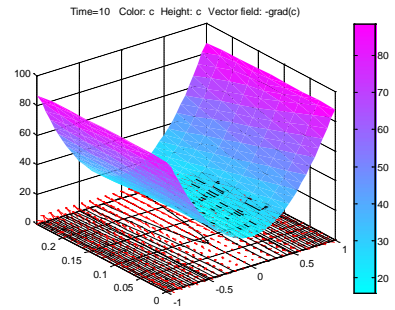
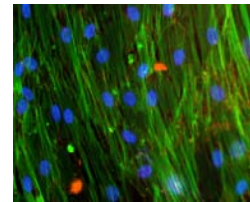
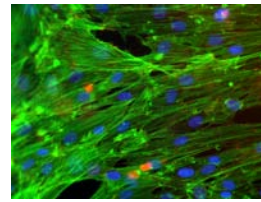
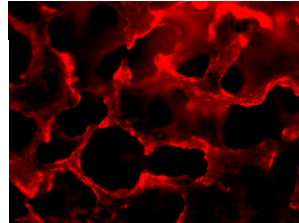
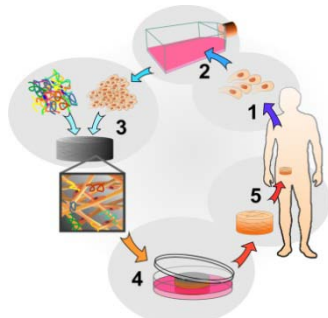


Dr. Kibret Mequanint
Vascular Tissue Engineering

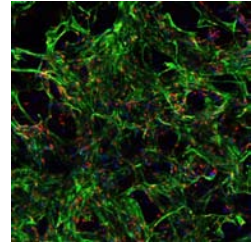
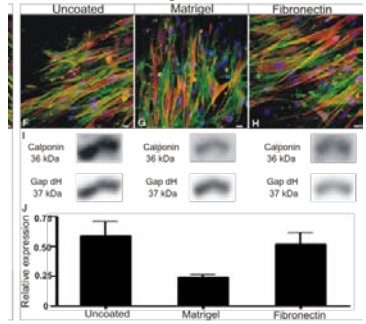
Biomaterials Design



Cellular Engineering



7 day culture



Biochemical Engineering Group

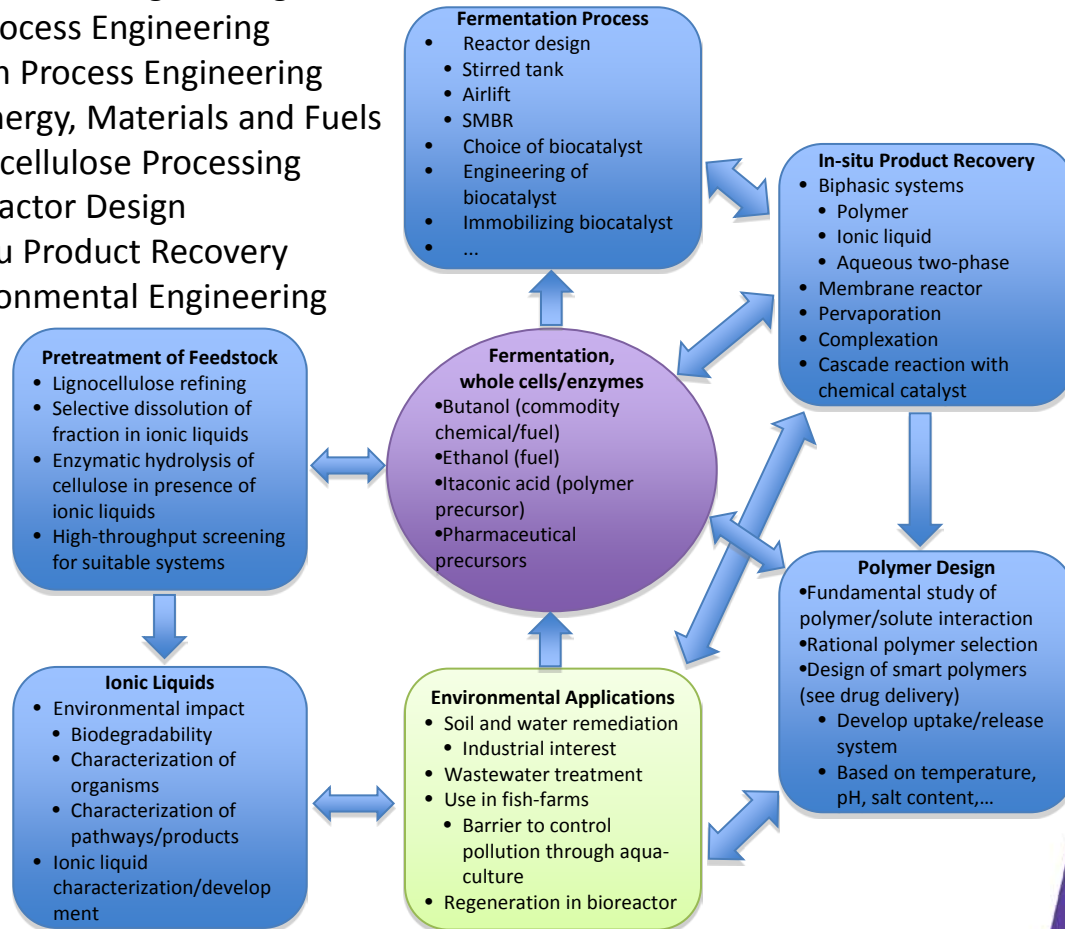


Dr. Lars Rehmann

Research interests:

- Biochemical Engineering
- Bioprocess Engineering
- Green Process Engineering
- Bioenergy, Materials and Fuels
- Lignocellulose Processing
- Bioreactor Design
- In-situ Product Recovery
- Environmental Engineering

For open M.E.Sc. and Ph.D. projects, contact me:
rehmann@eng.uwo.ca

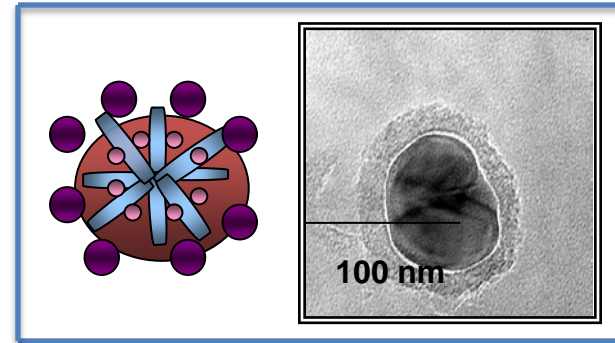


Research Interests

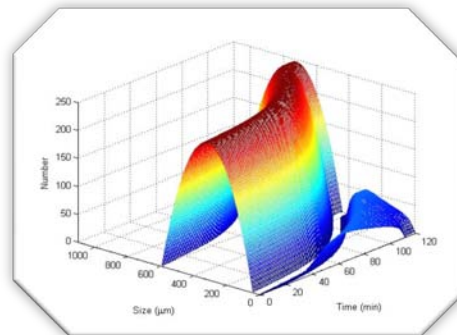
- ❑ Real-Time Optimal Control of Chemical Processes
- ❑ Control of Polymorphism in Pharmaceuticals
- ❑ Pulmonary Drug Delivery
- ❑ Fabrication and Modification of Titania Nano-Tube Arrays
- ❑ Chiral Separation of Pharmaceuticals
- ❑ Novel Zeolites Synthesis & Applications
- ❑ Ultrasound Sensor, PSD Measurement
- ❑ Production of Biodiesel from Wastewater Sludge



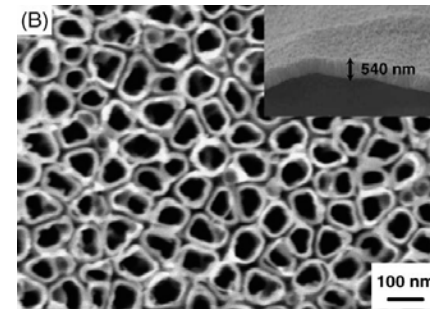
Dr. Sohrab Rohani



Progesterone-chitosan magnetic nanoparticles for pulmonary drug delivery



Optimal control of crystallization and polymorphism

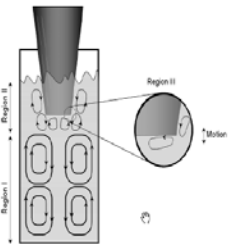


SEM images of TiO_2 nanotube arrays for water splitting and Treatment

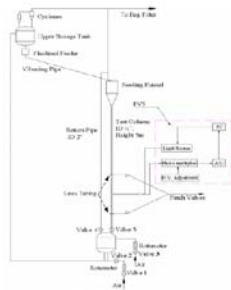


Dr. Mita Ray

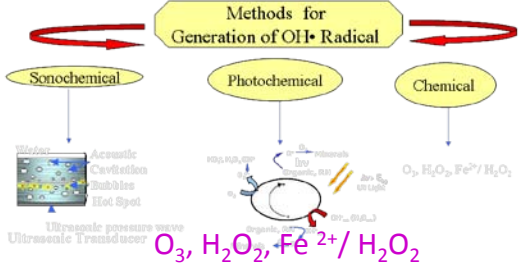
Pretreatment of Sludge Prior to Anaerobic Digestion



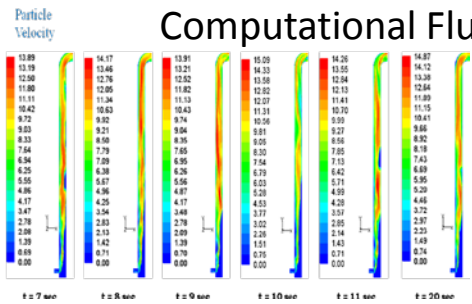
Reactions in CFB



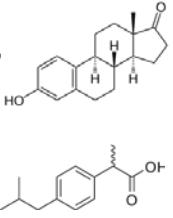
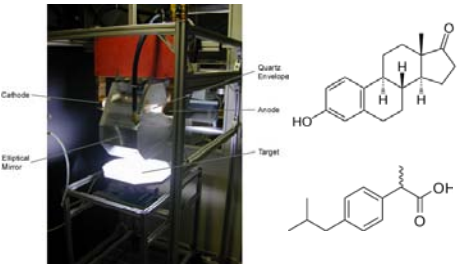
Advance Oxidation Processes for Waste Treatment



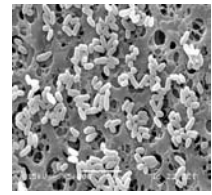
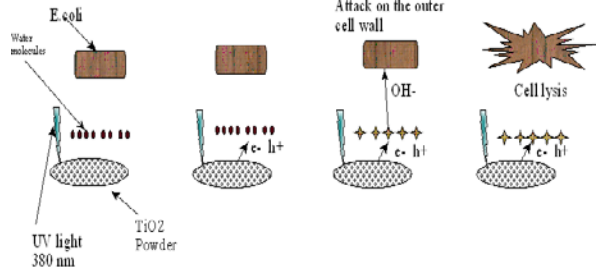
Design of Separator and Dryer using Computational Fluid Dynamics



Environmental Degradation of Endocrine Disruptor Compounds



Disinfection of Bioaerosol and Cleaning of Indoor Air

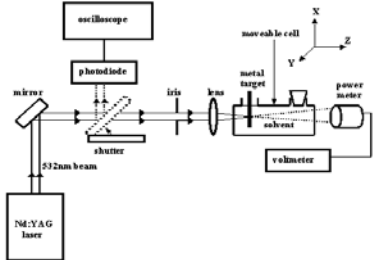


Dr. Jin Zhang

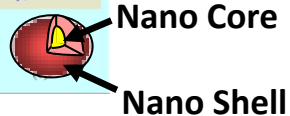
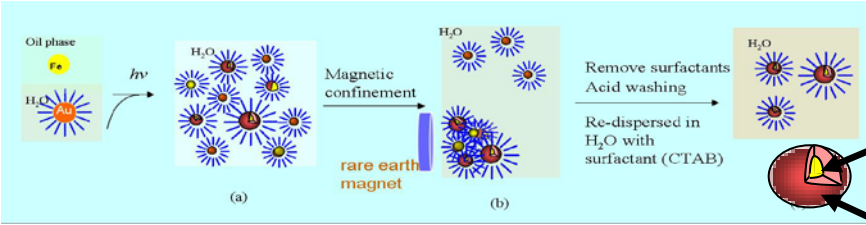
Development of top-down and bottom-up processes for the synthesis of new materials at nano-scale



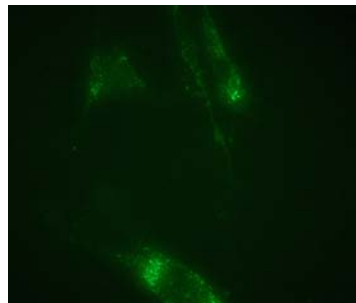
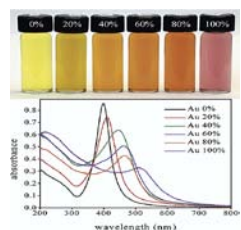
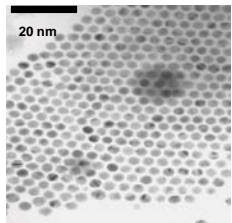
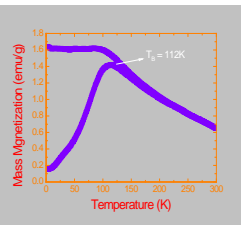
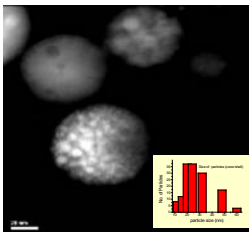
a. Laser-assisted process



b. Wet Chemical Synthesis



Multifunctional Nanocomposites used for targeted drug delivery

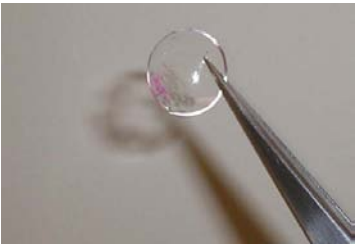
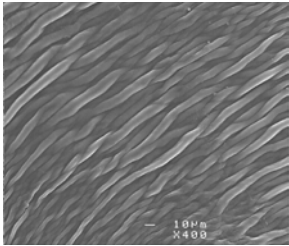


J. Zhang, et al. *J. Phys. Chem. B*, 110, 7122, (2006)

J. Zhang, et al., *Cancer, Genomics & Proteomics*, 3, 147, (2006).

J. Zhang, et al. *Nanoscale Res. Lett.*, 4, 1297, (2009)

Nanocomposite-based contact lens sensor



**Institute for Chemicals and Fuels
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The University of Western Ontario

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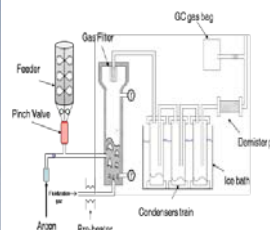
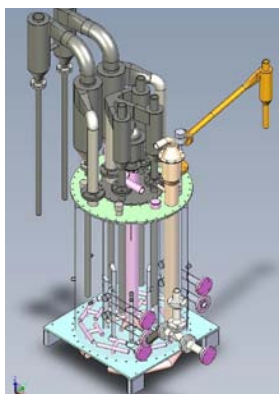


Dr. Franco Berruti & Dr. Cedric Briens

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Dr. Leonardo Millon
Winner of 2009 Martin Walmsley
Fellowship for Technical Entrepreneurship

Surgical skills are a necessary part of a medical students' training. Dr. Millon and his team started the LifeLike BioTissue, Inc. company to provide realistic touch and feel Surgical Phantoms for surgical skills training.



Advisors: Dr. Wankei Wan (Biomaterials) from Chemical and Biochemical Engineering and
Dr. Mackenzie Quantz (Surgical) from Surgery and a cardiac surgeon at LHSC