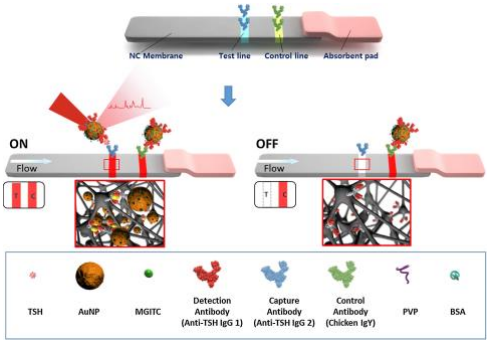
Concordia University
Concordia University
Arts and Science
Department of Physics

TURAK RESEARCH GROUP

MSc and PhD positions (Fall 2023/Winter 2024)
Nanoparticle based surface functionalization for control and detection Thyroxine (T3, T4, TSH)
Department of Physics, Concordia University, Montreal Canada
Centre for NanoScience Research (CeNSR)

The Turak Functional Nanomaterials Laboratory seeks to revolutionize biosensors by making them cheaper, more accessible, and more flexible. Our research focusses on developing easy, versatile, and inexpensive methods of exploring and tuning surfaces using nanoparticle functionalization. To achieve this vision, the Turak group uses simple manufacturing approaches (reverse micelle deposition), allows nature to dictate morphology (entropic self-assembly, beneficial dewetting), and develops characterization tools that are widely applicable to nanotechnology.

In this project, students will utilize novel nanoparticle patterning and surface functionalization methods to increase the density of biorecognition elements and provide enhanced exposure of active sites for protein binding. The research project will target measurements of the thyroid function, utilizing nanoparticle approaches to detect thyroxine, specifically T3, T4, TSH and related antibodies. Incorporation into a biosensing platform will open up many new opportunities with revolutionized accessibility, as it paves the way for portable, point-of care sensors, particularly useful for Canadians with vulnerable immune systems, mobility issues, or those residing in remote locations.



Choi et al. Sensors Actuators B 240 358 (2017)

Concordia Department of Physics is a growing department in a university with rapidly increasing rating. We offer research-based M.Sc. and Ph.D. programs. Our faculty members conduct research in the areas of Condensed Matter Physics (theoretical and experimental), Molecular Biophysics, Medical Physics / Imaging, Photonics, Theoretical High Energy Physics, Computational Physics and Physics Education.

Successful applicants will be offered financial packages consisting of RA, TA and various awards of at least 20,000 CAD per year (often more), for 4 years (Ph.D.) or 2 years (M.Sc.). International students will be offered tuition remissions or other awards to compensate for the international tuition fees.

Please contact Professor Ayse Turak (ayse.turak@concordia.ca) or Professor Pablo Bianucci, Graduate Program Director (pablo.bianucci@concordia.ca) for more information.

To apply, please send a letter of interest, CV and contact information for two references in a single pdf document, with email subject “Turak Lab Project Applicant”. Only applicants considered for employment will be contacted for an interview. **All applications should be sent to Ayse Turak (ayse.turak@concordia.ca)**


Nanoscale photonics
Flexible optoelectronics and sensors
Low cost functional inks for bespoke applications
Disruptive nanomedicines