

**Southern Ontario Numerical Analysis Day 2022**  
**Lecture Hall 001 Accolade EAST (Building 92)**  
**Friday May 27th**  
**York University**

**PROGRAM**

**9:00 am - 9:30 am:** Welcome, coffee and refreshments.

**9:30 am - 9:35 am:** Prof. Michael Haslam (York), Opening remarks

**9:35 am - 10:20 am:** Prof. James Bremer (Toronto). Invited Lecture. Asymptotically improved solvers for the variable coefficient Helmholtz equation.

**10:20 am - 10:40 am:** Aaron Baier-Reinio (Waterloo). Error analysis of divergence-free discontinuous Galerkin methods for incompressible flow problems under minimal regularity.

**10:40 am - 11:00 am:** Anita Gjesteland (Bergen). Strong imposition of the no-slip boundary condition for the compressible Navier-Stokes equations.

**11:00 am - 11:15 am:** Break

**11:15 am - 11:35 am:** Ruining Wu (Toronto). DGMT: A semidiscretization method for solving high-dimensional parabolic partial differential equations with deep learning.

**11:35 am - 11:55 am:** Andrew Na (Waterloo). Efficient pricing and hedging of high dimensional American options using deep recurrent networks.

**11:55 am - 12:15 pm:** Dawei Wang (Toronto). A high-order deferred correction method for the solution of free boundary problems using penalty iteration, with an application to American option pricing.

**12:15 pm - 12:35 pm:** Chendi Ni (Waterloo). Optimal asset allocation for outperforming a stochastic benchmark target.

**12:35 pm - 13:35 pm:** Lunch

**13:35 pm - 14:20 pm:** John Morton (SHARCNET). Invited Lecture. Accelerating your research through advanced research computing.

**14:20 pm - 14:40 pm:** Prof. Lennaert van Veen (Ontario Tech). Simulating the aggregation of micro-organisms.

**14:40 pm - 15:00 pm:** Connor Tannahil (Waterloo). MM-ADMM: implicit integration of MMPDEs in parallel.

**15:00 pm - 15:20 pm:** Hamidreza Moazzami (McMaster). Variational data assimilation.

**15:20 pm - 15:35 pm:** Break

**15:35 pm - 15:55 pm:** Cong Wang (York). Energy-conserved FDTD methods with local mesh refinement for Maxwell's equations with Drude model.

**15:55 pm - 16:15 pm:** Dylan Bassi (McMaster). MechFacility3D: simulating multibody dynamics in 3D.

**16:15 pm - 16:35 pm:** Esha Saha (Waterloo). HARFE: hard-ridge random feature expansion.

**16:35 pm - 16:40 pm:** Prof. Dong Liang (York). Closing remarks.