

# Numerical Analysis and Scientific Computing Seminar

**Rüdiger Brecht  
Memorial University**

**Thursday, February 6, 2020  
SN-4040, 2-3pm**

***Discrete Exterior Calculus for fluid dynamics***

**Abstract:**

Discrete Exterior Calculus (DEC) is a way of formulating discrete analogues of exterior calculus operators or objects, such that they preserve their structure at a discrete level. We will start with an introduction to DEC, where we review primal and dual complexes, differential forms, the exterior derivative and the Flat operator. Then, DEC is applied to fluid dynamics by rewriting the governing equations using their analogue in DEC and then substituting the corresponding discrete operators into the equation.