

# DALHOUSIE MATHEMATICS COLLOQUIUM

Monday September 17 2018, 3:30 pm, Chase 319

Speaker: Theodore Kolokolnikov

(Dalhousie University)

## *Mathematics of emergent behaviour*

There are many examples in nature where individual particles following simple rules can lead to complex and beautiful overall patterns, often given a vague name of "emergent behaviour". Some examples include sand piles, biological swarms (from bacterial aggregation to school of fish, murmuration of starlings...), Bose-Einstein Condensates at atomic level, and many others. We discuss several such systems, how they lead to new and interesting mathematics, and how mathematics can in turn help to obtain novel insights about the original system.