PETER BOOTH, Memorial University
On the Classification of 3-stage Postnikov Towers

Moore Postnikov factorization allows us to view homotopy types of topological spaces as being constructed out of standardized building blocks, i.e., Eilenberg–MacLane spaces.

The relevant classification result has long been known for 2-stage spaces, i.e., those constructed from just two building blocks. The 3-stage case is in general unresolved.

We investigate the latter question in situations where the factorization—viewed as a fibration—has an H-cogroup base space and a product of Eilenberg–MacLane space fibres. A precise classification result up to fibrewise homotopy type is obtained for such cases.

This result appears to generalize to higher-dimensional cases in a relatively straightforward manner.

CANAN BOZKAYA, Memorial University of Newfoundland, Department of Mathematics and Statistics
Computation of flow past a cylinder beneath of a free surface

This study focuses on free surface flow past a circular cylinder based on a two fluid model at a Reynolds number of $R = 200$. The cylinder is forced to perform harmonic streamwise oscillations in the presence of an oncoming uniform flow. The effects of the free surface presence at a submergence depth of $h = 0.75$ for a fixed Froude number, $\mathrm{Fr} = 0.2$ are investigated on the vortex shedding modes and fluid forces acting on the cylinder. Calculations are performed at a fixed displacement amplitude of $A = 0.13$ in forcing frequency-to-natural shedding frequency ratio range 1.5-3.5.

DENNIS D.A. EPPLE, University of Victoria, POBox 3060 STN CSC, Victoria, BC, V8W 3R4
The Bichromatic number of a graph

A (k, l)-colouring of a graph G is a covering of its vertex set by k independent sets and l cliques, generalizing both the colouring and clique covering of a graph. The bichromatic number of G is defined as the minimum integer r, such that G is (k, l)-colourable for all $k + l = r$. In this talk we will investigate some fundamental properties of the bichromatic number.

KSENIYA GARASCHUK, University of Victoria, Canada
Rational decompositions of graphs

Given a graph G, an H-decomposition of G is a partition with its edge set into subgraphs isomorphic to H. A rational H-decomposition of G is a nonnegative rational weighting of the copies of H in G such that the total weight on any edge of G equals 1. The study of graph decompositions plays an important role in graph theory and combinatorics and has numerous applications. We will present a proof of the fact that any sufficiently large circulant (under several mild conditions) admits a rational decomposition into copies of any non-trivial graph on at most k vertices. This proof will showcase a linear algebraic connection between decomposition of these graphs and families with dominant differences.