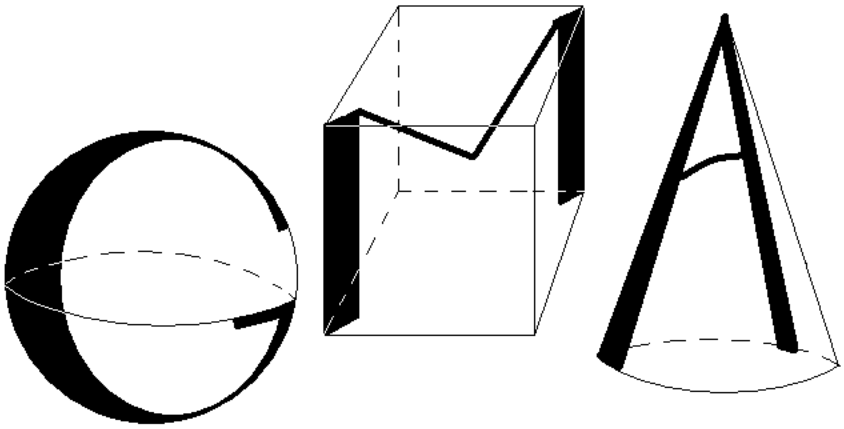

Colloquium

February 27, 4:05 p.m. (9^{th} Period)

(in the Atrium)

Speaker: Dr. Scott McCullough

Title: Setting Analysis Free

Abstract

Free analysis is the fully matricial (quantized) analog of classical analysis. It finds applications beyond mathematics in engineering systems theory, quantum information theory, and convex optimization and semidefinite programming. Within mathematics it is intimately connected to the theories of completely positive maps and operator systems and spaces. There are some pleasant surprises. For instance, continuous free functions are analytic; convex free polynomials have degree two; and free convex semialgebraic sets are free polytopes. This informal introduction to free analysis will also include a discussion of results of our own Meric Augat and James Pascoe.