CCSU
DEPARTMENT OF MATHEMATICAL SCIENCES

COLLOQUIUM

Friday, April 8
2:00 – 3:00 PM
Maria Sanford, Room 101

CELLULAR RESOLUTIONS OF MONOMIAL IDEALS

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Abstract: Given an ideal in a commutative ring one can define a chain of homomorphisms called a minimal free resolution. Minimal free resolutions give rise to invariants that measure the complexity of the ideal. In some special cases, namely ideals generated by monomials, one can define a simplicial complex whose long exact sequence of homology is exactly the minimal free resolution of the ideal. In this case we say that a monomial ideal has a cellular resolution. This notion gives a nice interplay between topology, combinatorics, and commutative algebra. In this talk we will formally define the aforementioned objects along with looking at examples. We will finish by looking at some joint work with Uwe Nagel (University of Kentucky) in which we show a certain class of monomial ideals have cellular resolutions.

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