1166-13-102 **Susan Cooper**, **Sabine El Khoury**, **Sara Faridi*** (faridi@dal.ca), **Sarah Mayes-Tang**, **Susan Morey**, **Liana Sega** and **Sandra Spiroff**. *Simplicial resolutions for powers of square-free monomial ideals.* Preliminary report.

In the 1960's Diana Taylor proved that the simplicial chain complex of a simplex on q vertices can be used to build a free resolution of any monomial ideal with q generators. This free resolution is known as the "Taylor resolution", and while far from minimal, it provides us with bounds for Betti numbers of monomial ideals that depend only on the number of generators of the ideal.

The focus of this talk is the following question: if I is generated by q square-free monomials and r is a positive integer, is there a simplicial complex which is smaller than then Taylor complex and can still be used to describe a free resolution of the r-th power I^r of I?

Based on relations between the generators of I we build such a simplicial complex. As a result we provide much better bounds for the Betti numbers of I^r when I is a square-free monomial ideal.

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