MINA BIGDELI, Institute for Research in Fundamental Sciences (IPM)
Chordal clutters vs. collapsible simplicial complexes

A challenging problem in combinatorial commutative algebra is to give a characterization of the uniform clutters whose associated ideals have a linear resolution independent of the characteristic of the base field. Thanks to Fröberg, the problem is solved in the case of 2-uniform clutters. In this talk, we first define a reduction process on a uniform clutter $\mathcal{C}$ under which the non-linear Betti numbers of the ideal $I(\bar{\mathcal{C}})$ do not change. Motivated by this result, we define a class of d-uniform clutters called chordal which partially generalize the result of Fröberg. We then extend this notion to simplicial complexes and compare this class with the class of collapsible simplicial complexes.

This talk is mainly based on a joint work in progress with Sara Faridi and a joint work with Ali Akbar Yazdan Pour and Rashid Zaare-Nahandi.