CHROMATIC HOMOTOPY, K-THEORY AND FUNCTORS

CIRM, LUMINY, 23-27.01.2023

TUESDAY 17:00 – 18:00, **Inna Zakharevich** (Cornell University):

Coinvariants, assembler K-theory, and scissors congruence.

For a geometry X (such as Euclidean, spherical, or hyperbolic) with isometry group G the scissors congruence group $\mathcal{P}(X, G)$ is defined to be the free abelian group generated by polytopes in X, modulo the relation that for polytopes P and Q that intersect only on the boundary, $[P \cup Q] = [P] + [Q]$, and for $g \in G$, $[P] = [g \cdot P]$. This group classifies polytopes up to "scissors congruence," i.e. cutting up into pieces, rearranging the pieces, and gluing them back together. With some basic group homology one can see that $\mathcal{P}(X, G) \cong H_0(G, \mathcal{P}(X, 1))$. Using combinatorial K-theory $\mathcal{P}(X, G)$ can be expressed as the K_0 of a spectrum $K(X, G)$. In this talk we will generalize this formula to show that, in fact, $K(X, G) \simeq K(X, 1)_{hG}$, and in fact more generally that this is true for any assembler with a G-action.

This is joint work with Anna Marie Bohmann, Teena Gerhardt, Cary Malkiewich, and Mona Merling.