Equivariant methods in Geometric Combinatorics - An Overview -

Abstract: This talk should be a gentle introduction to the interaction between geometric and combinatorial problems on the one side and the equivariant topology methods on the other side. We will shed some light on the relationships:

- Ham Sandwich theorem, Barany-Larman conjecture for r = 2 \longleftrightarrow Borsuk-Ulam theorem
- Non-planarity of $K_{3,3}$, Toplogical Tverberg theorem for primes \longleftrightarrow Dold theorem
- Topological Tverberg theorem for prime powers
 ←→ Equivariant cohomology for elementary abelian groups with field coefficients
- Equipartition of two masses by a 4-fan, Rattray theorem for n = 3 \longleftrightarrow Equivariant cohomology for non elementary abelian groups with field coefficients
- Tetrahedra on deformed spheres
 ←→ Equivariant cohomology for non elementary abelian groups with integer coefficients