

**Mauricio Velasco (Universidad de los Andes)**  
**Sums of squares on finite homogeneous spaces.**

**Abstract:** Let  $G$  be a finite group acting on a finite set  $X \subseteq^n$ . We prove that the structure of the symmetries allow us to obtain sparse certificates for the nonnegativity of polynomial functions on  $X$  leading to more efficient semidefinite programs for polynomial optimization on  $X$ . Our results extend the work of Fawzi, Parrilo and Saunderson from abelian to arbitrary finite groups. These results are in progress joint work with J. Caro and G. Mantilla (U. Andes).