1154-43-1813 **Emily J King*** (`emily.king@colostate.edu`). *Introduction to Group Actions in Harmonic Analysis.*

Group actions have implicitly played a role in harmonic analysis since its inception in the work of Fourier on solutions of the heat equation. Namely, one can generate the classical Fourier basis as an action of the group $\mathbb{T}$ on $L^2([0,1])$. Hundreds of years later in the 20th century, the two most important transforms in applied harmonic analysis arose, the wavelet transform and the short-time Fourier transform, which were created using projective unitary representations of the affine group and the Weyl-Heisenberg group, respectively. Today, some of the most active research areas in harmonic analysis involve the generation of a set as the orbit of a (semi-)group action, in particular in dynamic sampling and in open problems in finite frame theory, like Zauner's conjecture. There are also cutting edge methods in data analysis which generalize the algebraically generated transforms in harmonic analysis to domains like graphs and neural networks, e.g., diffusion wavelets and the scattering transform. This talk will serve as the introduction to the AMS Special Session on Group Actions in Harmonic Analysis. (Received September 16, 2019)