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**Joanna Furno, James Keesling\*** (kees@uf1.edu) and **James Maissen**. *Applications of topological group actions on Hilbert space*. Preliminary report.

Let  $\Delta_p$  be the  $p$ -adic group. There is a free action of  $\Delta_p$  on separable infinite-dimensional Hilbert space. The simplest construction of such an action is by using the space of measurable functions to  $\Delta_p$ ,  $\mathcal{M}([0, 1], \Delta_p)$ . This space is homeomorphic to separable infinite-dimensional Hilbert space. It is a topological group from the topological group structure on  $\Delta_p$ . The group  $\Delta_p$  is a subgroup and hence acts freely on  $\mathcal{M}([0, 1], \Delta_p)$ .

In this talk we investigate this group action and give some applications. Among other results we show that this group action is universal for a large collection of free  $p$ -adic group actions on separable metric spaces. (Received September 10, 2014)