1171-35-25 **Samuel Walsh*** (walshsa@missouri.edu), 307 Mathematical Science Building, Columbia, MO 65203. *Global bifurcation for monotone fronts of elliptic PDE.*

In this talk, we will discuss recent results on global continuation of monotone front-type solutions to elliptic PDEs posed on infinite cylinders. This is done under quite general assumptions, and in particular applies even to fully nonlinear equations as well as quasilinear problems with transmission boundary conditions. Our approach is rooted in the analytic global bifurcation theory of Dancer and Buffoni–Toland, but extending it to unbounded domains requires contending with new potential limiting behavior relating to loss of compactness. We obtain an exhaustive set of alternatives for the global behavior of the solution curve that is sharp, with each possibility having a direct analogue in the bifurcation theory of second-order ODEs. As an application of the general theory, we construct global families of internal hydrodynamic bores.

This is joint work with Ming Chen and Miles H. Wheeler. (Received August 03, 2021)