1154-39-1954 **Brandon M. Tippings*** (tippings@math.arizona.edu). *A Non-Autonomous Discrete Painlevé Equation and Counting Maps.* Preliminary report.

Over the last few decades, the autonomous discrete Painlevé 1 equation has been studied from several different perspectives. One can view the d-P_1 equation as defining dynamics on the plane, or as a Quispel-Roberts-Thompson mapping. Another perspective is that of Okamoto and Sakai, where the dynamics are understood through the geometry of a special surface called 'the space of initial values'. Using these perspectives, one can gain insight into several related combinatorial problems, such as counting 4-valent planar maps, and blossom trees.

In this talk we will discuss an integrable deautonomization of the discrete Painlevé 1 equation. This specific equation arises from a recurrence relation for orthogonal polynomials with respect to an exponential weight, and has connections to counting 4-valent maps of any genus. From the various different perspectives, we can understand the non-autonomous dynamics and address questions from the 4-valent map counting problem. (Received September 16, 2019)