

1154-G5-2330 **Joseph Previte** and **Michelle Previte*** (michelleprevite@psu.edu), 1 Prischak Building,
4205 College Dr, Erie, PA 16563. *The Beautiful Chaotic Dynamics of i^z* .

Euler and Eisenstein explored the concept of iterated exponents and their convergence. One particular iterated exponent of interest is $i^{i^{i^{\dots}}}$ which can be shown to converge to $z_* \approx 0.4382829366 + 0.3605924718i$

In this talk, we explore the dynamics of the principal branch of the complex map $f(z) = i^z$, which has z_* as a fixed point. This function exhibits interesting dynamics, including chaos, making the analysis of this map an excellent case study in an undergraduate complex analysis course or as a supplemental undergraduate research project in such a course. At the end, we present several open problems that an undergraduate with a solid complex analysis course would be able to investigate. (Received September 17, 2019)