

Spring 2019 Undergraduate Seminar

Department of Mathematics



The Mathematics behind Tupper's Formula

Derek Orr

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Date: Tuesday, January 29

Time: 12:00-12:50 pm

Location: Room 703, Thackeray Hall

Derek went to Pitt for his undergrad, graduating in 2016 with degrees in both math and physics. Now, Derek is a third year math biology PhD student at Pitt under Dr. Bard Ermentrout, and is pursuing an MS in number theory as well. He has given numerous talks in this seminar as well as the Math Club where he was president for his last two years of his undergraduate career.



In this talk, we will discuss so-called “Tupper’s self-referential formula”, given by

$$\frac{1}{2} < \left\lfloor \text{mod} \left(\left\lfloor \frac{y}{17} \right\rfloor 2^{-17\lfloor x \rfloor - \text{mod}(\lfloor y \rfloor, 17)}, 2 \right) \right\rfloor$$

One can plot the points (x, y) that satisfy this formula and (if you look in the right place) the graph is miraculous! I will go through the mathematics of why the graph looks the way it does. If there is time at the end, we will look at Python code where you can create your own Tupper graph. Pizza and drinks will be provided!

SPEAKER(S) FOR NEXT WEEK:

Behnam Esmayli



Organized by: Derek Orr, Tom Everest, Jeremiah Morgan, Jeff Wheeler