The SUMO Speaker Series for Undergraduates

(food from Pizza Chicago)
Wednesday, April 14
4:40-5:30, room 380C

Computing remarkably large integers from infinite cardinals

Dr. Rick Sommer

Abstract: In a contest to describe the largest integer, a clever contestant will say “one greater than the maximum of the others." After tightening the rules to prevent inconsistencies that result from multiple entries of this sort, strategies for defining large numbers typically use functions with high growth rates. We take this approach to the extreme by iterating rapidly growing functions indexed on infinite ordinals. Functions obtained in this way are more than just a curiosity -- they are used in mathematical logic to measure the complexity of proofs, displaying a strong connection between provability and computability. This leads to the strategy of unraveling strong axiom systems to define large integers, which can be viewed as a consistent way to go "one greater than the max of the others” in the largest integer contest. Following a path to large integers, this talk will give an overview of seminal results in logic and set theory; no prior knowledge of these fields is assumed.

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