# CCSU

## DEPARTMENT OF MATHEMATICAL SCIENCES

# COLLOQUIUM

Friday, April 29

3:00 – 4:00 PM

Maria Sanford, Room 101

# COMPLEX ANALYSIS AND BOUNDS ON THE NUMBER OF PERIODIC SOLUTIONS OF DIFFERENTIAL EQUATIONS WITH AN APPLICATION TO A NEURAL MODEL


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## Part 1: Complex Analysis and Bound on the Number of Periodic Solutions


### ABSTRACT

The qualitative behavior of the differential equation $x' = f(t, x)$, where $x$ is real and $f$ is periodic in $t$, is determined by the attracting periodic solutions. The method of Yulij Ilyashenko uses complex analysis to determine an upper bound on the number of these solutions.


**Remark:** Both talks are based on the paper *Complex Methods for Bounds on the Number of Periodic Solutions with an Application to a Neural Model*, American Mathematical Monthly, February 2022. The paper is available to open-access download at https://maa.tandfonline.com/doi/full/10.1080/00029890.2022.2005389#.Yly9QNPMLIU

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