

THE CATHOLIC UNIVERSITY OF AMERICA
Washington, DC 20064

SEMINAR IN FUNCTIONAL ANALYSIS
AND RELATED AREAS

Wednesday, February 8, 2023

5:10 p.m. - 6:50 p.m. (including a coffee break)

SPEAKER: Brent W. Baccala
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TITLE: Alternate techniques for solving systems of polynomial equations

ABSTRACT: While Buchberger's algorithm to construct Gröbner bases has justifiably been the subject of study and acclaim since its introduction in 1965, alternate strategies and algorithms exist to solve systems of polynomial equations. Numerical techniques can be used to construct witness points, which are approximate solutions accurate enough that exact solutions can be recovered from them. This talk will outline a basic technique for recovering exact solutions from witness points and describe two numerical algorithms used to construct witness points: the homotopy continuation method used by the Bertini software program, and the root finding algorithm used by the speaker to study differential equations.

PLACE: Aquinas Hall, room 108. The talk will be on Zoom as well (from 5:10 p.m. to 6:50 p.m. ET). The corresponding link will be sent to everyone in advance.

ORGANIZERS: V. Bogdan (The Catholic University of America), P. Kainen (Georgetown University), R. Kalpathy (The Catholic University of America), and A. Levin (The Catholic University of America).

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<https://mathematics.catholic.edu/faculty-and-research/mathematics-seminar/index.html>