

**THE CATHOLIC UNIVERSITY OF AMERICA**  
**Washington, DC 20064**

**SEMINAR IN FUNCTIONAL ANALYSIS  
AND RELATED AREAS**

**Wednesday, March 1, 2023**

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

**SPEAKER:** Michael Somos  
The Catholic University of America

**TITLE:** Somos sequence solutions of Diophantine equations

**ABSTRACT:** I will briefly introduce the Lucas sequences and the more general Somos-4 and Somos-5 sequences. The generalized Somos-4 sequences form the basis of my WXYZ Math Project. One property of my four  $(w(n), x(n), y(n), z(n))$  sequences is that they are solutions of the four variable Diophantine equations  $x^2 + N*w^2 = y^2$  and  $x^2 + M*w^2 = z^2$  of Euler's concordant forms. Special cases include the Pell's equation and the congruent number problem equations. I will give a few examples of cubic and quartic Diophantine equations which have solution tuples given in terms of generalized Somos-4 and Somos-5 sequences. This includes an arXiv article from 2022 by Hone on Heron triangles with two rational medians and Somos-5 sequences.

**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).

Tel: [202-319-5221](tel:202-319-5221), [202-319-5222](tel:202-319-5222). Fax: [202-319-5231](tel:202-319-5231). E-mail: [levin@cua.edu](mailto:levin@cua.edu)

**Web page:**

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