Halmos College of Arts and Sciences
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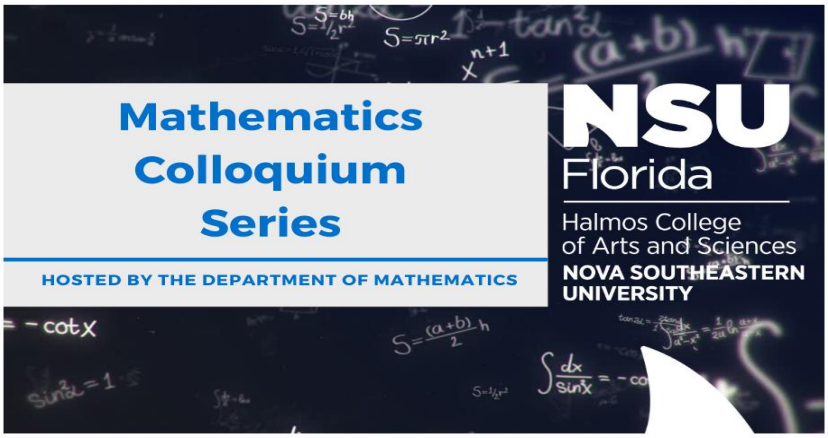

Time: Thursday, October 26, 2023, 12:30-1:15pm

Location: Parker Building 301

Speaker: Lubomir Markov, Ph.D.
Barry University, Florida

Title: IN EULER'S FOOTSTEPS: THE ENDURING APPEAL OF SPECIAL FUNCTIONS AND SPECIAL PROBLEMS

Abstract: We denote the Euler-Riemann zeta function by ζ(x) and the dilogarithm by $L_2(x)$. The question of determining the exact value of ζ(2) (known as the *Basel Problem*), the one of obtaining as much information as possible about ζ(3), and a host of other related problems have been of unwavering interest for over 300 years. Several other special functions arise from the consideration of series similar to $L_2(x)$. Two of them are Ramanujan's inverse tangent integral $T_2(x)$ and Legendre's chi-function $\chi_2(x)$. In our talk we shall derive the power series expansion for the function $T_2(\tan(x))$ and use it to obtain several rapidly convergent numerical series involving zeta values. An integral representation for ζ(2) similar to the one given by Margrethe Munthe Hjortnaes in 1953 for ζ(3) is also obtained, as well as a one-line solution to the Basel problem famously settled by Euler in 1734.

The entire NSU community, including students at all levels of mathematics, is invited and encouraged to attend.

About the speaker: Dr. Markov holds an undergraduate degree from Sofia University, Bulgaria, and a Ph.D. from the University of South Florida (both in Mathematics). He is a professor with the Department of Math and C.S. at Barry University, where he has taught a variety of basic and advanced courses over the years. His mathematical interests are in the fields of classical analysis and theory of functions, analytic number theory, differential equations, and geometry of Hilbert and Banach spaces. Dr. Markov is an active member of several national and international professional organizations, and has twice served as the President of the Mathematical Association of America – Florida Section (2007-2008 and 2022-2023 terms of office).