Ilya Spitkovsky

New York University Abu Dhabi/College of William and Mary

Almost periodic factorization in the twenty first century

Abstract

The set AP of (Bohr) almost periodic functions is the closed subalgebra of $L_\infty(\mathbb{R})$ generated by all the exponents $e_\lambda(x) := e^{i\lambda x}$, $\lambda \in \mathbb{R}$. An AP factorization of an n-by-n matrix function G is its representation as a product

$$G = G_+ \operatorname{diag}[e_{\lambda_1}, \ldots, e_{\lambda_n}] G_-,$$

where $G_+^{\pm 1}$ and $G_-^{\pm 1}$ have all entries in AP with non-negative (resp., non-positive) Bohr-Fourier coefficients. This is a natural generalization of the classical Wiener-Hopf factorization of continuous matrix-functions on the unit circle, arising in particular when considering convolution type equation on finite intervals. The state of AP factorization theory as of the beginning of the century can be found in the monograph "Convolution Operators and Factorization of Almost Periodic Matrix Functions" by A. Böttcher, Yu. I. Karlovich and myself. In this talk I will describe, time permitting, further results obtained and problems still open.

Talk time: 07/18/2016 3:00PM— 07/18/2016 3:20PM
Talk location: Cupples I Room 215

Special Session: Toeplitz operators and related topics. Organized by S. Grudsky and N. Vasilevski.