# ICM 1998, Berlin, Aug. 18–27

## Abstracts of Short Communications and Posters

### Section:

## 8. Analysis


1991 MS Classification: 47B30, 42A75, 47G20

Spitkovsky, Ilya, The College of William & Mary, USA

**Almost periodic factorization and its applications**


We consider an almost periodic analogue of the Wiener-Hopf factorization, that is, possible representations of $n \times n$ matrix functions $G$ in the form

$$G(t) = G_+(t)\Lambda(t)G_-(t), \qquad t \in \mathbb{R}, \tag{1}$$

where $G_\pm$ are almost periodic, analytic and invertible in the upper/lower half plane, $\Lambda(t) = \operatorname{diag}[e^{i\lambda_1 t}, \ldots, e^{i\lambda_n t}]$, and $\lambda_1, \ldots, \lambda_n \in \mathbb{R}$.
Existence criteria and explicit construction of the factorization (1) will be given, mostly for block triangular matrix functions

$$G(t) = \begin{bmatrix} e^{i\lambda t} I & 0 \\ f(t) & e^{-i\lambda t} I \end{bmatrix}. \tag{2}$$

Several applications of the factorization (1) for matrices (2) will be considered, including convolution integro-difference equations on finite intervals, Carathéodory-Toeplitz and Nehari problems for (matrix) functions of several variables, Sarason interpolation and (Toeplitz) corona problem for almost periodic matrix functions.