Sessão: Operator Algebras and Applications Dedicated to Professor Maria Amélia Bastos

The Haseman boundary value problem with SAP-type matrix coefficient.

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For a compound curve $\Gamma = \bigcup_{k=1}^{m} \Gamma_k \subset \mathbb{C} \cup \{\infty\}$ with bounded and unbounded oriented smooth arcs Γ_k and a finite set $\mathcal{N}$ of nodes, by applying the matrix almost periodic factorization, a Fredholm criterion and an index formula are established for the Haseman boundary value problem: Find an analytic vector function $\Phi : \mathbb{C} \setminus \Gamma \to \mathbb{C}^N$ represented by the Cauchy type integral over Γ with a density $\varphi \in L^p_N(\Gamma)$, $p \in (1, \infty)$, and satisfying the boundary condition $\Phi^+ \circ \alpha = G\Phi^- + g$ on Γ, where $\Phi^{\pm}$ are angular boundary values of Φ on Γ, G is an $N \times N$ matrix function continuous on $\Gamma \setminus \mathcal{N}$ and having an almost periodic type behavior at nodes $t \in \mathcal{N}$, $g \in L^p_N(\Gamma)$, and α is an orientation-preserving diffeomorphism of each arc Γ_k onto itself.

The talk is based on the joint work with Mario Guerrero-Pérez.