EUGENIO DELLEPIANE, Université Laval

Boundedness, Compactness and Schatten class for Rhaly matrices

We discuss the Rhaly operator R_α, that acts on ℓ^2 as the infinite matrix

$$R_\alpha = \begin{pmatrix} \alpha_0 & 0 & 0 & \cdots \\ \alpha_1 & \alpha_1 & 0 & \cdots \\ \alpha_2 & \alpha_2 & \alpha_2 & \cdots \\ \vdots & \vdots & \vdots & \ddots \end{pmatrix}.$$

Rhaly matrices arise as a natural generalization of the Cesàro operator. We provide new characterizations of the boundedness and compactness of R_α on ℓ^2, and we completely characterize its membership in the p-Schatten class $\mathcal{S}^p(\ell^2)$, for $1 < p < \infty$. We also answer to an open question, posed by Mashreghi–Ransford in 2019. This talk is based on a joint work with Carlo Bellavita and Giorgos Stylogiannis.