$(\alpha,\beta)\text{-}\mathbf{R}\mathbf{K}$ operators: A new mixed Ritt Kreiss condition

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Abstract: Given a Banach space X and a bounded linear operator T one can define the discrete semigroup $\{T^n\}_{n=0}^{\infty}$. A significant question that arises in the field of numerical analysis, particularly when examining the stability of certain numerical methods, is the study of the growth of $||T^n||$. In the historical context of this field, dealing with this question has often involved imposing conditions on the norm of the resolvent operator of T, such as the Ritt condition or de Kreiss condition.

In this talk, I will introduced a mixed Ritt and Kreiss condition, study geometric properties of the spectrum and give some norm estimates of the operators which satisfy this new condition. As a consequence, we get an interpolation result for Ritt and Kreiss operators on L^p spaces.

This has been a joint work with Silvia Rueda Sánchez from Universidad del Bío-Bío (Chile).