

Non-linear resolvents in the unit ball of a Banach space

Mark Elin (Braude College of Engineering, Karmiel, Israel)

In this talk I plan to discuss known and new results on non-linear resolvents of holomorphically accretive mappings defined in the open unit ball of a complex Banach space.

Namely, we will present a criterion for a mapping to be holomorphically accretive with given squeezing ratio of the generated semigroup as well estimates on its non-linear resolvents.

Following an idea of Harris–Reich–Shoikhet, we establish an inverse function theorem for mappings that admit so-called one-sided estimates. This allows to obtain distortion and covering results for non-linear resolvents. In their turn, the distortion and covering theorems imply accretivity of resolvents with estimates on squeezing ratio. Furthermore, we prove that a nonlinear resolvent is a starlike mapping of given order subject some mild conditions.