Strong and Polynomial Stability for Delay Semigroups

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In this talk we will discuss strong and polynomial stability for semigroups associated with delay differential equations. In particular we will study some conditions on the delay operator Φ and the generator B of the underlying semigroup that ensure strong and polynomial stability of the delay semigroup associated with the abstract delay differential equation

$$\begin{cases} u'(t) = Bu(t) + \Phi u_t, \ t > 0, \\ u(0) = x, \\ u_0 = f, \end{cases}$$

where X is a Banach space, $u_t(\sigma) = u(t+\sigma), -1 \leq \sigma \leq 0, x \in X, f$ lies in an appropriate space, $(B, D(B))$ generates a C_0-semigroup on X and Φ is the delay operator.