

A HILLE–YOSIDA THEOREM FOR BI–CONTINUOUS SEMIGROUPS

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In Lecture 13 of ISEM20, [6], it was shown that the Ornstein–Uhlenbeck semigroup is not strongly continuous on $C_b(\mathbb{R}^d)$. So it seems that one cannot define its generator and not apply the classical Hille–Yosida theory. In this project we show the contrary and introduce so-called bi-continuous semigroups yielding generators, resolvents and Hille–Yosida estimates. The available theory including perturbation and approximation results shall be applied to various classes of semigroups such as implemented semigroups and flow semigroups.

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