

## Strongly continuous semigroups on some Fréchet spaces

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*The talk is based on the joint work with L. Frerick, E. Jordá, and J. Wengenroth.*

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We prove that for a strongly continuous semigroup  $T$  on the Fréchet space  $\omega$  of all scalar sequences, its generator is a continuous linear operator  $A \in L(\omega)$  and that, for any  $x \in \omega$  and  $t \geq 0$  the series  $\exp(tA)x = \sum_{k=0}^{\infty} \frac{t^k}{k!} A^k x$  converges to  $T(t)x$ . This solves a problem posed by Conejero in [2]. Moreover, we improve recent results of Albanese, Bonet, and Ricker [1] about semigroups on strict projective limits of Banach spaces.

### References

- [1] A. Albanese, J. Bonet, W. Ricker,  *$C_0$ -semigroups and mean ergodic operators in a class of Fréchet spaces*, J. Math. Anal. Appl., 365, 2010, 142–157.
- [2] J.A. Conejero, *On the existence of transitive and topologically mixing semigroups*, Bull. Belg. Math. Math. Soc. Simon Stevin 14, 2007, 463–471.
- [3] L. Frerick, E. Jordá, T. Kalmes, J. Wengenroth, *Strongly continuous semigroups on some Fréchet spaces*, J. Math. Anal. Appl., 412, 2014, 121–124.