



Addendum to “Ulam–Hyers stability and exponentially dichotomic equations in Banach spaces” [*Electron. J. Qual. Theory Differ. Equ.* 2023, No. 8, 1–10]

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We add relevant references about which we learned after the completion of the initial work. We mainly show how the concept of exponential trichotomy can successfully replace the one of exponential dichotomy in some results from the paper in the title.

Keywords: Ulam–Hyers stability, exponential dichotomy, exponential trichotomy.

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After the completion of [2] we learned about a few works of L. Backes, D. Dragičević et al. In particular, they work with the notion of *Lipschitz shadowing property* that coincides with the notion of *Ulam–Hyers stability* used in [2]. Theorem 4.4 in [2] is a particular case of Theorem 6 in [1], where the linear part admits an exponential trichotomy. Also, note that the hypothesis that the evolution family is exponentially bounded is not used in the proofs of Theorems 4.2 and 4.4 in [2].

We also learned about the paper [3] by S. Elaydi and O. Hájek whose Theorem 5.3 can be used to generalize Theorem 3.5 in [2]. The statement of the new result is mainly obtained by replacing “Ulam–Hyers stability with uniqueness” and “exponential dichotomy” in Theorem 3.5 [2] with “Ulam–Hyers stability” and “exponential trichotomy”, respectively.

We apologize for any inconvenience caused by our omissions.

References

- [1] L. BACKES, D. DRAGIČEVIĆ, Shadowing for infinite dimensional dynamics and exponential trichotomies, *Proc. Roy. Soc. Edinburgh Sect. A* **151**(2021), 863–884. <https://doi.org/10.1017/prm.2020.42>
- [2] A. BUICĂ, Ulam–Hyers stability and exponentially dichotomic evolution equations in Banach spaces, *Electron. J. Qual. Theory Differ. Equ.* **2023**, No. 8, 1–10; <https://doi.org/10.14232/ejqtde.2023.1.8>

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- [3] S. ELAYDI, O. HAJEK, Exponential trichotomy of differential systems, *J. Math. Anal. Appl.* **129**(2023), 362–374. [https://doi.org/10.1016/0022-247X\(88\)90255-7](https://doi.org/10.1016/0022-247X(88)90255-7); Zbl 0651.34052