

**Erratum: Non-Markovian frequency conversion between optical
and microwave photons with magnetomechanical transduction
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In the original paper, we cited the previous work [159], but the discussion of the Commonalities and differences between our work and Ref. [159] was not adequate and should have been more extensive. In particular, we should have made it clearer that, while there are essential differences as discussed below, Ref. [159] influenced the outline of our own paper. All our findings and conclusions remain unchanged. Below, we discuss the relation between the two papers in more detail.

Commonalities. Both Ref. [159] and our paper examine frequency conversion between optical and microwave photons with magnetomechanical transduction.

Differences. Reference [159] investigates six Markovian environments with real cooperativities above Eq. (12), while we introduce six non-Markovian environments and complex cooperativities in Eq. (30) to study frequency conversion to achieve enhancements in conversion efficiency and bandwidths [see Figs. 4(c) and 9(a)].

Discussion in the paper. (i) The citation [52–54] should be expanded to [52–54,159] in the discussion of previous work on microwave-optics frequency conversion via magnons and phonons in the Introduction. (ii) To compare non-Markovian and Markovian regimes, we should have cited [159] at the end of the first paragraph in Secs. IV, VI, and VII. (iii) We furthermore point out that we should have better cited Ref. [159] in Figs. 1–3 and 5 and in Tables I and II. We were trying to present our work in a manner to allow ease of comparison between Markovian [159] and non-Markovian (our work) effects and we failed to properly indicate this fact in our paper.

Acknowledgments. We thank the authors of Ref. [159] for their foundational contributions and regret not sufficiently comparing their findings with ours.

[159] F. Engelhardt, V. A. S. Bittencourt, H. Huebl, O. Klein, and S. Viola Kusminskiy, Optimal broadband frequency conversion via a magnetomechanical transducer, *Phys. Rev. Appl.* **18**, 044059 (2022).