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**ABSTRACT**

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**Entropy production of the quantum Markov semigroup associated with open quantum walks on the periodic graphs**

**Abstract:** We compute the entropy production of the quantum Markov semigroup associated with (continuous time) OQWs on the periodic graphs. We apply the entropy production formula developed by Fagnola and Rebolledo [1]. The finiteness/zero of the entropy production in the considered model gives a new feature in understanding the dynamics of the OQWs. We also discuss the quantum detailed balance condition in the model.

[1] F. Fagnola and R. Rebolledo, Entropy production for quantum Markov semigroups, *Commun. Math. Phys.* **335**, 547-570 (2015).