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**Entropy increase during physical processes for black holes in
Lanczos-Lovelock gravity**

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We study quasi-stationary physical process for black holes within the context of Lanczos-Lovelock gravity. We show that the Wald entropy of stationary black holes in Lanczos-Lovelock gravity monotonically increases for quasi-stationary physical processes in which the horizon is perturbed by the accretion of positive energy matter and the black hole ultimately settles down to a stationary state. This result reinforces the physical interpretation of Wald entropy for Lanczos-Lovelock models and takes a step towards proving the analogue of the black hole area increase-theorem in a wider class of gravitational theories.