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The first Dirichlet eigenvalue on the linear orbit of a convex body.

Brownian motion provides a path between the Gaussian measure and the first Dirichlet eigenvalue of Euclidean domains. We will follow it to establish some new inequalities for the first Dirichlet eigenvalue of convex bodies. In particular, departing from the Gaussian B-conjecture, we arrive at a new convexity property of the first eigenvalue of general convex bodies. As a corollary, we deduce that the Faber-Krahn position of a convex body, minimizing the first eigenvalue in its SL-orbit, is unique up to orthogonal transformations, thus answering a question of Schmuckenschläger from 2011. This is a joint work with Iosif Polterovich.