

# **The effect of drift on the volume of the Wiener sausage and the dimension of the Brownian path**

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The Wiener sausage at time  $t$  is the algebraic sum of a Brownian path on  $[0,t]$  and a ball.

Does the expected volume of the Wiener sausage increase when we add drift?

How do you compare the expected volume of the usual Wiener sausage to one defined as the algebraic sum of the Brownian path and a square (in 2D) or a cube (in higher dimensions)? We will answer these questions using their relation to the detection problem for Poisson Brownian motions, and rearrangement inequalities on the sphere. (joint work with Yuval Peres)