Cameron-Martin space

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Definition 1. Let $W(\mathbb{R}^d)$ be Wiener space. The *Cameron-Martin space* $H(\mathbb{R}^d)$ is the subspace of $W(\mathbb{R}^d)$ consisting of all paths ω such that ω is absolutely continuous and $\int_0^\infty |\omega'(s)|^2 \, ds < \infty$. (Note that if ω is absolutely continuous, then it is almost everywhere differentiable, so the integral makes sense.)

This can be thought of as the set of paths with "finite energy."

Note that $H(\mathbb{R}^d)$ has Wiener measure 0, since sample paths of Brownian motion are nowhere differentiable, whereas a path from $H(\mathbb{R}^d)$ is almost everywhere differentiable.