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**Fabrice Baudoin, Nizar Demni and Jing Wang\*** ([jingwang@purdue.edu](mailto:jingwang@purdue.edu)), 150 N. University Street, West Lafayette, IN 47907. *Quaternionic Brownian windings.*

We study the 3-dimensional winding processes along the Brownian paths in the quaternionic Euclidean, projective, and hyperbolic spaces, and obtain their asymptotic laws in large time. In the flat and spherical spaces the asymptotic laws are shown to be Gaussians, while in the hyperbolic space they are related to Cauchy relativistic distributions. (Received August 30, 2021)