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**Johannes Jaerisch\*** (jaerisch@riko.shimane-u.ac.jp), **Marc Kesseböhmer** and **Sara Munday**. *A multifractal analysis for cuspidal windings on hyperbolic surfaces.*

We introduce the cusp winding process of the geodesic flow on a hyperbolic surface  $\mathbb{H}/G$ , for non-elementary, finitely generated, free Fuchsian groups with parabolic elements. We investigate the multifractal decomposition of the limit set of  $G$  with respect to the mean cusp winding number. We will completely determine its multifractal spectrum in terms of an associated topological pressure function. This extends previous results for continued fraction expansions on the modular surface  $\mathbb{H}/\mathrm{PSL}(2, \mathbb{Z})$ . (Received September 13, 2016)