1176-51-104   **Bjoern Muetzel*** (`bjorn.mutzel@gmail.com`), Eckerd College, Department of Mathematics, 4200 54th avenue South, Saint Petersburg, FL 33711, **Peter Buser** (`peter.buser@epfl.ch`), EPFL Lausanne, Department of Mathematics, Station 8, 1015 Lausanne, Vaud, Switzerland, and **Eran Makover** (`makovere@ccsu.edu`), Central Connecticut State University, Department of Mathematics, 1615 Stanley Street, New Britain, CT 06050. *Short homology bases for hyperelliptic hyperbolic surfaces.*

Given a hyperelliptic hyperbolic surface S of genus $g \geq 2$, we find bounds on the lengths of homologically independent loops on S. As a consequence, we show that for any $\lambda \in (0,1)$ there exists a constant $C(\lambda)$ such that every such surface has at least $\lceil \lambda \cdot \frac{2}{3} g \rceil$ homologically independent loops of length at most $C(\lambda)$. This allows us to extend the constant upper bound obtained by B. Muetzel on the minimal length of a nonzero period lattice vector of a hyperelliptic Riemann surface to almost $\frac{2}{3} g$ linearly independent vectors. (Received January 16, 2022)

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