1171-51-153 **Liam R Kahmeyer*** (kahmeyer32@ksu.edu), 2122 Northview Drive, Manhattan, KS 66502. *A homotopy invariant of stable maps to* $\mathbb{R}^2$.

The singular set of a generic map $f : M \to \mathbb{R}^2$ of a manifold M of dimension $m \geq 2$ is a closed smooth curve Σ. When $m = 3$ or m is even, the image $\gamma = f(\Sigma)$ of the singular set is locally oriented. The local orientation gives rise to the so-called Gauss map $\gamma \to S^1$, which is a discontinuous L_2-function. We use the Gauss map to define a cumulative winding number of γ. We show that the cumulative winding number of γ is a well-defined element of $\frac{1}{2}\mathbb{Z}$. We use the cumulative winding number to solve a problem by Saeki on singularities of maps of a 3-sphere to a 2-sphere. (Received August 09, 2021)