Maggie Miller* (maggiem@princeton.edu). Dehn surgery on links vs. the Thurston norm.

Let $L$ be an $n > 1$-component link in a rational homology sphere $Y$ with pairwise nonzero linking numbers. Let $S$ be a Thurston norm-minimizing surface in the complement $X$ of $L$. By work of Gabai, $S$ is the leaf of a taut foliation on $X$. Note that $H_2(X, \partial X; \mathbb{R})$ is rank $n$.

I show that if $[S]$ is primitive and outside a dimension-$(n-2)$ subset of $H_2(X, \partial X; \mathbb{R})$, then $Y_{\partial S}(L)$ admits a taut foliation containing $\hat{S}$ as a leaf, so $\hat{S}$ is norm-minimizing (and we conclude e.g. $\hat{S}$ is essential, and if $S$ is not genus-zero then the surgered manifold is not $S^1 \times S^2$). In particular, when $n = 2$, there are only finitely many primitive classes where no taut foliation extends after surgery.

In this short talk, I will motivate the theorem and sketch the overall proof method. (Received September 11, 2019)