

PARAMETRIZING HITCHIN COMPONENTS

Let S be a closed, connected, oriented surface of genus $g \geq 2$. Hitchin components $\text{Hit}_n(\mathbb{R})$ are components of the $\text{PSL}_n(\mathbb{R})$ -character variety $\mathcal{R}_{\text{PSL}_n(\mathbb{R})}(S)$ that generalize Teichmüller components in the case where $n = 2$. In a joint work with Francis Bonahon, we construct a geometric, real analytic parametrization of Hitchin components $\text{Hit}_n(\mathbb{R})$. One feature of this parametrization is that it is based on topological data only. In essence, our parametrization is an extension of Thurston's shear coordinates on the Teichmüller space, combined with Fock-Goncharov's coordinates on the moduli space of positive framed local systems of a punctured surface. More precisely, given a maximal geodesic lamination λ in S , we introduce two types of invariants for elements in a Hitchin component $\text{Hit}_n(\mathbb{R})$: the shear cycle, that is associated with λ ; and the triangle invariants, that are associated with each component of the complement $S - \lambda$. We describe identities and relations satisfied by these invariants, and use the resulting coordinates to parametrize the Hitchin component $\text{Hit}_n(\mathbb{R})$.