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Outer space, flat tori, and the period mapping

The period mapping assigns to each marked, rank- n metric graph a positive definite quadratic form. This defines a continuous map from outer space to the space of positive definite quadratic forms. The latter can be identified either with the symmetric space $SL_n(\mathbb{R})/SO_n(\mathbb{R})$, or alternately with the space of marked, flat n -dimensional tori. The period mapping is therefore a free group analog of the classical Abel-Jacobi map from Teichmüller space to the Siegel upper half plane. We will discuss what is known about the image of this map and describe the fibers explicitly for all n . This is joint work with Neil Fullarton.