Positivity of simplicial volume via barycentric techniques

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Abstract: In this talk, I will introduce the barycentric straightening in the general context of non-positively curved manifolds. I will go through the derivative estimate which gives rise to the Jacobian estimate of the straightening map. If the Jacobian is uniformly bounded, then the volume of all straightened simplices have uniformly bounded volume, which will imply that the simplicial volume of the manifold is strictly positive. I will discuss in certain cases of non-positively curved manifolds when the Jacobian estimate can be obtained via an eigenvalue matching process. In particular, I will explain why this estimate works in $SL_4(R)$ but not in $SL_3(R)$.