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Martin J Bridgeman* (bridgem@bc.edu), Department of Mathematics, Boston College,
Chestnut Hill, 02167. *Positive-Definiteness of the Weil-Petersson extension on Quasifuchsian
Space.*

We consider a natural two-form G on quasifuchsian space that extends the Weil-Petersson metric on Teichmüller space. We describe completely the positive definite locus of G , showing that it is a positive definite metric off the fuchsian diagonal of quasifuchsian space. We show that G is equal to the pullback of the pressure metric from dynamics. We use the properties of G to prove that critical points of the Hausdorff dimension function on quasifuchsian space must have Hessian which is positive definite on at least a half-dimensional subspace. In particular this implies that there are no local maxima. (Received August 15, 2008)