The Reciprocal of the Fundamental Theorem of Riemannian Geometry HECTOR CALDERON, Montana State University — The fundamental theorem of Riemannian geometry is inverted for analytic Christoffel symbols. The inversion formula, henceforth dubbed Ricardo's formula, is obtained without ancillary assumptions and it is well suited to compute the uncertainty in the metric that arises from the uncertainty in the measurement of positions. The solution is given up to a constant conformal factor, in part, because there are no experiments that can fix such factor without probing the whole universe. Ricardo's formula excludes some pathological examples and works for manifolds of any dimension and metrics of any signature.

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