1125-58-2826 **Phillip Andreae*** (pvandreae@meredith.edu). *Analytic torsion, the eta invariant, and closed differential forms on spaces of metrics.*

We introduce an interpretation of certain invariants constructed from Laplace spectral data on a compact Riemannian manifold as regularized integrals of closed differential forms on the space of Riemannian metrics, or more generally on a space of metrics on a vector bundle. We apply this idea to both the Ray-Singer analytic torsion and the eta invariant, explaining their dependence on the metric used to define them with a Stokes' theorem argument. We also introduce analytic multi-torsion, a generalization of analytic torsion, in the context of certain manifolds with local product structure; we prove that it is metric independent in a suitable sense. (Received September 20, 2016)