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**A notion of the weighted σ_k curvature
for manifolds with density**

I propose a natural definition of the weighted σ_k curvature for a manifold with density. This definition is intended to capture the key properties of the σ_k curvatures in conformal geometry with the role of pointwise conformal changes of the metric replaced by pointwise changes of the measure. I will describe some algebraic and analytic properties of the weighted σ_k curvatures. These results are all analogues of their conformal counterparts, and in the case $k = 1$ recover some well-known properties of Perelman's \mathcal{W} -functional.