On Some Variational Pseudohermitian Invariants

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Abstract

A pseudohermitian invariant is variational if the problem of prescribing it to be constant is variational within a class of contact forms on a fixed CR manifold. For example, the Tanaka–Webster scalar curvature is variational. I will describe other important examples, namely the Q- and Q-prime-curvatures as well as a pseudohermitian analogue of the σ_2-curvature, focusing both on their applications to geometric classification in dimension three and on their relation to certain sharp Sobolev inequalities.