On the local systolic optimality of Zoll contact forms

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In a joint work with Alberto Abbondandolo, we prove a normal form for contact forms close to a Zoll one and deduce that Zoll contact forms on any closed manifold are local maximizers of the systolic ratio. Corollaries of this result are:

(1) Sharp local systolic inequalities for Riemannian and Finsler metrics close to Zoll ones.
(2) The perturbative case of a conjecture of Viterbo on the symplectic capacity of convex bodies.
(3) A generalization of Gromov's non-squeezing theorem in the intermediate dimensions for symplectomorphisms that are close to linear ones.