Boundary infinitesimal rigidity of holomorphic maps

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In this talk I will present several new invariant boundary versions of the Schwarz lemma for conformal pseudometrics on the unit disk and for holomorphic self-maps of strongly convex domains in several complex variables in the spirit of the boundary Schwarz lemma of Burns–Krantz. As a particular case, I will show that given $F : D \longrightarrow D'$ a holomorphic map between two bounded strongly convex domains D, D' with smooth boundaries, then F is a biholomorphism if and only if there exists a point p on the boundary ∂D of D such that the differential of F at p is bounded and $F^*(k_{D'})(z;v) = k_D(z;v) + o(\text{dist}(z,\partial D)$, as $z \longrightarrow p$ non-tangentially, locally uniformly in v, where k_D is the infinitesimal Kobayashi metric. The talk is based on a joint work in progress with Oliver Roth and Daniela Kraus from Wuerzburg University.