Geometric invariants of negatively curved manifolds based on their Kähler forms

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Considering different Kähler structures on complex manifolds, we discuss hypercomplex invariants of the quaternionic and octanionic hyperbolic structures including analogies of Cartan angular and Toledo invariants that are well known in the complex hyperbolic space. Another hypercomplex invariants of quaternionic and octonionic hyperbolic structures are defined as characters of their fundamental groups representations by using corresponding Kähler 4- and 8-forms. Using such invariants we study rigidity and deformations (including bendings) of Kähler structures of quaternionic and octonionic hyperbolic manifolds. This is based on our joint work with Inkang Kim.

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