06

- David Brander
  - Results related to generalizations of Hilbert's non-immersibility theorem for the hyperbolic plane
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We discuss generalizations of the well-known theorem of Hilbert that there is no complete isometric immersion of the hyperbolic plane into Euclidean 3-space. This problem is expressed very naturally as the question of the existence of certain homotheties of reflective submanifolds of a symmetric space. As such, we conclude that the only other (non-compact) cases to which this theorem could generalize are the problem of isometric immersions with flat normal bundle of the hyperbolic space H^n into a Euclidean space E^{n+k}, $n \geq 2$, and the problem of Lagrangian isometric immersions of H^n into complex Euclidean space, C^n, $n \geq 2$. Moreover, there are natural compact counterparts to these problems, and for the compact cases we prove that the theorem does in fact generalize: local embeddings exist, but complete immersions do not.

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