

Ivan Solonenko B.Sc.

Kings College London

Homogeneous complex hypersurfaces in Hermitian symmetric spaces

25. April 2023 – 16:15 Uhr

Übertragung online und Raum 7.530 in Präsenz

Abstract: In his paper from 1968, B. Smyth classified homogeneous complex hypersurfaces (HCHs) in complex space forms: those are \mathbb{C}^{n-1} in \mathbb{C}^n , $\mathbb{C}H^{n-1}$ in $\mathbb{C}H^n$, $\mathbb{C}P^{n-1}$ in $\mathbb{C}P^n$, as well as the smooth quadric Q^{n-1} in $\mathbb{C}P^n$ (which is the only example that is not totally geodesic). By design, every HCH arises as an orbit of an isometric action of cohomogeneity 1 or 2. Peculiarly, all of the above examples come from $C1$ -actions. This suggests the following question: is it true that any HCH in a Kähler manifold can be realized as a singular orbit of an isometric $C1$ -action?

I am going to talk about Konno's classification of complex codimension-one embeddings of Kähler C -spaces with $b_2 = 1$ and explain how it implies the classification of HCHs in irreducible Hermitian symmetric spaces of compact type. By combining that with Kollross's classification of $C1$ -actions, we will see that the answer to the above questions is 'yes' in this case.

Finally, I will show how all non-totally-geodesic HCHs in irreducible compact Hermitian symmetric spaces can be obtained via the complexification construction for projective spaces over normed real division algebras.

