Wutal KAna Meeting 2025, Wuppertal

Speaker: Dr. Tobias Harz, University of Bern

CR invariance of plurisubharmonic defining functions

Let $\Omega, \Omega' \subset\subset \mathbb{C}^n$ be smoothly bounded, pseudoconvex domains, and assume that there exists an orientation preserving CR-diffeomorphism $f\colon b\Omega \to b\Omega'$. I will show that there exists a smooth defining function r for Ω that is plurisubharmonic on $b\Omega$ if and only if there exists a smooth defining function r' for Ω' that is plurisubharmonic on $b\Omega'$. I will also formulate the property of admitting a defining function that is plurisubharmonic on $b\Omega$ in a way that only uses the CR structure of $b\Omega$, and thus makes sense on an abstract CR manifold.