DOMAINS OF EXISTENCE FOR FINELY HOLOMORPHIC FUNCTIONS

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Finely holomorphic functions are the natural generalisation of holomorphic functions in the setting of the fine topology. We recall definitions and properties of the fine topology and finely holomorphic functions and will study what remains of the well-known theorem of Weierstrass that every domain U in $\mathbb{C}$ is a domain of existence. Roughly speaking, this says that every domain admits a holomorphic function that can nowhere be extended beyond U.

We will discuss joint work with Alan Groot and Bent Fuglede, which shows that in the fine setting the like result holds for a large class of fine domains, but not for all fine domains.