LOCAL AND GLOBAL $C$-REGULARITY

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Let $D$ be a domain in $\mathbb{C}^n$. The plurisubharmonic envelope of a function $\varphi \in C(\overline{D})$ is the supremum of all plurisubharmonic functions which are not greater than $\varphi$ on $D$. A bounded domain $D$ is called $c$-regular if the envelope of every function $\varphi \in C(\overline{D})$ is continuous on $D$ and extends continuously to $\overline{D}$. The purpose of this talk is to give a complete characterization of $c$-regular domains in terms of Jensen measures. We show using Gauthier’s Fusion Lemma that a domain is locally $c$-regular if and only if it is $c$-regular.