plurisubharmonic function

Canonical name	PlurisubharmonicFunction
Date of creation	2013-03-22 14:29:09
Last modified on	2013-03-22 14:29:09
Owner	jirka (4157)
Last modified by	jirka (4157)
Numerical id	9
Author	jirka (4157)
Entry type	Definition
Classification	msc 31C10
Classification	msc 32U05
Synonym	plurisubharmonic
Defines	plurisuperharmonic function
Defines	pseudoconvex function

Definition. Let $f \colon G \subset \mathbb{C}^n \to \mathbb{R}$ be an upper semi-continuous function. f is called *plurisubharmonic* if for every complex line $\{a+bz \mid z \in \mathbb{C}\}$ the function $z \mapsto f(a + bz)$ is a subharmonic function on the set $\{z \in \mathbb{C} \mid a + bz \in G\}$.

Similarly, we could also define a *plurisuperharmonic* function just like we have a superharmonic function, but again it just means that $-f$ is plurisubharmonic, and so this extra is not very useful.

Definition. A continuous plurisubharmonic function is said to be a *pseudo-convex function*.

Note that since plurisubharmonic is a long word, many authors abbreviate with *psh*, *plsh*, or *plush*.

References

[1] Steven G. Krantz. , AMS Chelsea Publishing, Providence, Rhode Island, 1992.