

Meeting: 1003, Atlanta, Georgia, SS 25A, AMS Special Session on Complex and Functional Analysis, I

1003-32-826 **Azimbay Sadullaevich Sadullaev*** (hab@ursu.uzpak.uz), 14, H. Olimjon st, 740013 Urgench, Khorezm, Uzbekistan. *On analitic multifunctions*. Preliminary report.

Let $G = D \times \mathbf{C} \subset \mathbf{C}_z^n \times \mathbf{C}_w$ be a domain and $S \subset G$ -a closed set. We denote by S_{z^0} -the intersection S and complex line $\{z = z^0\}$. Set-valued function $F : z \rightarrow S_z$, $z \in D$, is called also multifunction, defined in $D \subset \mathbf{C}^n$. If S -is pseudoconcave in G , then F is called analytical multifunction. We are interested a critery for analyticity of arbitrary multifunction. For $n=1$ Slodkowski has proved, that set-valued function $z \rightarrow S_z$ is analytic if and only if the function $V(z, w) = -\ln \rho(w, S_z) \in Psh(G \setminus S)$, where $\rho(z, w)$ -Euclidian distance between the point $w \in S$ and the set S_z in fix $z \in D$ We give the same critery for arbitrary n and for the *thin* multifunction.

Theorem. Let a multifunction $S \subset D \times \mathbf{C}$ such, that S_z -is not dense for every $z \in D$. Then S -is analytic if and only if $V(z, w) \in Psh(G \setminus S)$.

Problem. Let us given a bounded, closed set in $G = \times \mathbf{C}$ such, that S_z -polynomial convex for every $z \in D$ and the function $V(z, w) \in Psh(G \setminus S)$ is plurisubharmonic in $G \setminus S$. Is the $z \rightarrow S_z$ analytic? (Received September 30, 2004)