

Geometric characterization of the Shilov boundary for q -plurisubharmonic functions on bounded convex domains

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We introduce a notion of the Shilov boundary for some subclasses of upper semi-continuous functions on a compact Hausdorff space. It is by definition the smallest closed subset of the given space on which all functions of that subclass attain their maximum. For certain subclasses with simple structure one can show the existence and uniqueness of the Shilov boundary. Then we provide its relation to the set of peak points and establish Bishop-type theorems. As an application we obtain a generalization of Bychkov's theorem which gives a geometric characterization of the Shilov boundary for q -plurisubharmonic functions on convex bounded domains. We also show that there is an analytic foliation of parts of the Shilov boundary for q -plurisubharmonic functions on smoothly bounded pseudoconvex domains.