

Weak normality of families of meromorphic mappings and bubbling in higher dimensions

SERGEY IVASHKOVICH AND FETHI NEJI

Abstract. Our primary goal in this paper is to understand whether the sets of normality of families of meromorphic mappings between general complex manifolds are pseudoconvex or not. It turns out that the answer crucially depends on the type of convergence one is interested in. We examine three natural types of convergence introduced by one of us earlier and prove pseudoconvexity of sets of normality for a large class of target manifolds for the so called *weak* and *gamma* convergencies. Furthermore we determine the structure of the exceptional components of the limit of a weakly/gamma but not strongly converging sequence, they turn to be *rationally connected*. This observation allows to determine effectively when a weakly/gamma converging sequence fails to converge strongly. An application to the Fatou sets of meromorphic self-maps of compact complex surfaces is given.

Mathematics Subject Classification (2010): 32H04 (primary); 32H50, 32Q45 (secondary).