Remarks on separately subharmonic functions

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We give some refinements to the previous results of Lelong, Avanissian, Arsove and ours, concerning the subharmonicity of separately subharmonic functions. In addition, we improve the previous results of Kołodziej and Thorbiörnson and ours, concerning the subharmonicity of a function subharmonic with respect to the first variable and harmonic with respect to the second.

References

1. M.G. Arsove, *On subharmonicity of doubly subharmonic functions*, Proc. Amer. Math. Soc., 1966, vol. 17, 622–626.

2. V. Avanissian, *Fonctions plurisousharmoniques et fonctions doublement sousharmoniques*, Ann. Sci. Ecole Norm. Sup., 1961, vol. 78, 101–161.

3. S. Kołodziej and J. Thorbiörnson, *Separately harmonic and subharmonic functions*, Potential Anal., 1996, vol. 5, 463–466.

4. P. Lelong, *Les fonctions plurisousharmoniques*, Ann. Sci. Ecole Norm. Sup., 1945, vol. 62, 301–338.

5. J. Riihentaus, *On a theorem of Avanissian–Arsove*, Expo. Math., 1989, vol. 7, 69–72.

6. J. Riihentaus, *On separately harmonic and subharmonic functions*, Int. J. Pure Appl. Math., 2007, vol. 35, 435–446.

7. J. Riihentaus, *Subharmonic functions, generalizations and separately subharmonic functions*, The XIV-th Conference on Analytic Functions, July 22-28, 2007, Chełm, Poland, in: Scientific Bulletin of Chełm, Section of Mathematics and Computer Science, 2007, vol. 2, 49–76.

8. J. Riihentaus, *Subharmonic functions, generalizations and separately subharmonic functions: A survey*, 5th World Congress of Nonlinear Analysts (WCNA '08), July 2 - 9, 2008, Orlando, Florida, USA, in: Nonlinear Analysis, 2009, vol. 71, e2613–e2627.