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Section:

8. Analysis

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On Jurchescu's mixed manifolds

Martin Jurchescu defined in 1976 the mixed manifolds of type (m, n), having as local models open sets in $R^m \times C^n$ and as morphic maps C^∞-mappings holomorphic in the complex variables. He generalized for them (especially for his Cartan manifolds) the pluridimensional complex analysis. However other analysis theories can be also developed on Jurchescu's mixed manifolds. Thus I proposed to Elena Rusu, a doctorand from the Technical University of Moldavia, Chişinău, to study quasiconformality and quasiregularity on these manifolds. She obtained interesting results on quasiconformal and quasiregular morphic maps.

Now we present a joint work on this subject renouncing to the C^∞-smoothness of the considered quasiregular maps.

Let (s, z) and (s', z') be points, and D, D' open sets in $R^m \times C^n$ respectively. We deal with mappings $f : D \to D'$ having the structure of the morphic maps, i. e. of the form $f(s, z) = (\varphi(s), \psi(s, z)), s' = \varphi(s), z' = \psi(s, z)$. We study topological and metrical properties of φ and ψ under the hypothesis that f be quasiregular or have the topological properties of a quasiregular map, and conversely how such properties of φ and ψ are reflected on f.

We establish connections with other classes of mappings of several complex variables related to quasiconformality as those of S. Bergman, S. Hitotumatu and J. Riihentaus.