
SEMINARIO

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On the extension of Whitney ultrajets

Abstract: In this joint work with Armin Rainer from the University of Vienna we prove necessary and sufficient conditions for the validity of Whitney's extension theorem in the ultradifferentiable Roumieu setting with controlled loss of regularity. The growth rate of the jets, respectively of the derivatives of a smooth function, is measured by weight functions.

The weight functions which allow for an extension theorem preserving the ultradifferentiable class (for arbitrary compact sets) have already been fully characterized by Bonet, Braun, Meise, and Taylor. We are considering the situation where a loss of regularity arises, i.e. we are considering a mixed setting of two weight functions as it has been considered for the one-point set by Bonet, Meise, and Taylor and for compact convex sets by Langenbruch.

Finally we apply our main theorem to the mixed weight sequence case as well and compare our statement with the result of Chaumat and Chollet.

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