

ON THE MAXIMAL EXTENSION IN THE MIXED ULTRADIFFERENTIABLE WEIGHT SEQUENCE SETTING

GERHARD SCHINDL

For the ultradifferentiable weight sequence setting it is known that the Borel map which assigns to each function the infinite jet of derivatives (at 0) is surjective onto the corresponding weighted sequence class if and only if the sequence is strongly nonquasianalytic for both the Roumieu- and Beurling-type classes. Sequences which are nonquasianalytic but not strongly nonquasianalytic admit a controlled loss of regularity.

We determine the maximal sequence for which such a mixed setting is possible and get information on the controlled loss of surjectivity in this situation (for both types). Moreover, we compare the optimal sequences (solutions) for the appearing mixed strong nonquasianalyticity conditions.

Finally, we generalize these techniques and notions to the weight matrix setting, i.e. to one-parameter families of weight sequences. This approach allows the unified treatment of classes defined by weight sequences and weight functions and hence we can compare the optimal solutions in both settings. Here we focus on the Roumieu-type.

This is partially joint work with David Nicolas Nenning and Armin Rainer.