ELLIPTICITY AND THE PROBLEM OF ITERATES IN DENJOY-CARLEMAN CLASSES

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Abstract: In 1978 Metivier showed that a differential operator with real-analytic coefficients is elliptic if and only if any non-analytic Gevrey vector is a Gevrey function of the same order. In this talk we generalize Metivier's Theorem to Denjoy-Carleman classes given by weight sequences. In particular we show that if $\mathcal{E}^{\{\mathbf{M}\}}$ is a Denjoy-Carleman class such that the associated Borel map is surjective, then there is a vector u of class $\{\mathbf{M}\}$ for any non-elliptic differential operator with real-analytic coefficients, which is not an element of $\mathcal{E}^{\{\mathbf{M}\}}$. This is joint work with Gerhard Schindl.