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# VECTOR SPACES OVER FUNCTION FIELDS VECTOR SPACES OVER ANALYTIC FUNCTION FIELDS BEING ASSOCIATED TO ORDINARY DIFFERENTIAL EQUATIONS

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Abstract. It is a well-known fact, that the general solution of a linear ordinary differential equation belongs to a function vector space over the real (complex) number field generated by a finite exponential function set. This circumstance allows us to handle the large-time behavior and stability problems easily. However there is a wide class of non-linear differential equations whose solutions belong to some function space being also generated by an arbitrary exponential function set; so that the stability problems can be handled as in the linear case. To discern whether a given autonomous system belongs to such an equation class, sufficient conditions have been stated in a previous article. Now, we generalize those conditions to a wider class of non-linear autonomous systems.

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