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Dmitry Trushin* (trushindima@yandex.ru). *Spectra of rings differentially finitely generated over a subring.*

We consider differential rings that are algebras over the field of rational numbers. We present some ideas that are useful for investigation of such rings.

One of them uses the relation between the spectrum of an arbitrary differential ring and its differential spectrum. We consider pairs of properties. One of them characterizes the spectrum and the other one does it for the differential spectrum. If the first property holds, the other one is satisfied as well. The described pairs of properties allow us to reduce the study of a differential ring to the study of this ring considered as an ordinary ring.

To prove a theorem describing the structure of differential integral domains differentially finitely generated over a subring, we apply results about characteristic sets of differential ideals of the ring of differential polynomials over an integral domain.

The main proved theorems enable us to reduce the proof of propositions in differential algebra to the proof of some propositions of commutative algebra. We distinguish a very dense subset of spectrum with good properties and discuss analogues of differential algebraic varieties. Also, as an illustration of the presented method, some analogues of geometric theorems are proved without using the universal field. (Received February 15, 2007)