Theory and Computation in Algebra and Algebraic Geometry

With a dedication to Paolo Valabrega on the occasion of his 70(+2)th Birthday

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A glance at the non-Archimedean

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Before the second half of the eighteenth century, the archimedean property was implicitly considered satisfied in any ordered field. But in that period Veronese, Levi-Civita and Hilbert produced examples of non-archimedean fields (and, as a consequence, of non-archimedean geome- tries). Later, valued fields appeared as other examples of non-archimedean structures. I'll talk about differences between archimedean and non-archimedean situation, focusing on two special points: the problem of completing a field (Dedekind completion and Cantor completion) and the difficulty of preserving, in the non archimedean case, some essential theo- rems of archimedean analysis, by restricting, if necessary, the set of func- tions on which they hold. In particular, I'll mention some results on the extension of the intermediate value theorem of classical analysis to the analysis on a non-archimedean ordered (or valued) field.