

## On ordered fields dense in their real closure and definable convex valuations

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**Abstract:** In ongoing joint work with L. S. Krapp and G. Lehericy (arXiv:1810.10377), we investigate what convex valuations on (totally) ordered fields are definable in the language of ordered rings. This naturally leads towards a systematic study of ordered fields which are dense in their real closure. Some of our results have connections to a conjecture of Shelah on (strongly) dependent fields. In this talk, after summarizing the real algebraic background (including a related discussion of ordered abelian groups dense in their divisible hull), I will present our valuation theoretic characterization of density and some of its consequences. I will then proceed to a reformulation of the above conjecture for ordered fields, reducing it to an open question on (strongly) dependent archimedean fields.

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