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Title: Euclidean numbers

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Abstract: We present a class of hyperreal numbers $\mathbb{E}$ which we call Euclidean numbers. Their main property is that, for any accessible ordinal number α, any α-sequence of Euclidean number converges (in a suitable way) to an Euclidean number. This property gives them a very rich structure which allows to prove many other properties; in particular:

- the accessible ordinal numbers can be embedded in $\mathbb{E}$ in such a way that the natural operations are preserved
- they are isomorphic to a field of Hahn series (and hence they can be compared with the surreal numbers).
- they arise in a natural way from a Eucliedan theory of numerosity (and this explains their name).

This work is in collaboration with Marco Forti.