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Measuring definable sets in o-minimal structures

We introduce a measure on the strongly bounded definable sets in an o-minimal expansion of a real closed field which takes values in an ordered semiring, assigns to intervals their length, and is invariant under a change of variables formula. The construction can be modified in the case when the value group of the standard valuation is of rank one to yield a measure on all the bounded definable sets. This is joint work with M. Shiota.