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The geometry behind non-archimedean integrals

Abstract: Non-archimedean integrals are ubiquitous in various parts of mathematics. Motivic integration allows to understand them geometrically and to get strong uniformity statements. After a quick tour of some occurrences of non-archimedean integrals, we shall present some recent results in this area, in particular a Transfer Principle allowing to transfer identities involving functions defined by integrals from one class of local fields to another. Orbital integrals occurring in the Fundamental Lemma of Langlands Theory form a natural family of functions falling within the range of application of this Transfer Principle.