

Cell Decomposition for Henselian Valued Fields

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In 1969, Paul Cohen used a cell decomposition theorem to re-prove Tarski's quantifier elimination theorem for real closed fields. In the same paper, he proved a cell decomposition theorem for Henselian valued fields which allowed him to recover some results of Ax, Kochen and Ershov on p-adic fields. I will discuss Cohen's cell decomposition for Henselian valued fields. These techniques were used by Denef and by Pas to obtain results on p-adic zeta functions. Cell decomposition is also a key ingredient in motivic integration. I will discuss some joint work with R. Cluckers and L. Lipshitz on applications to Henselian valued fields with analytic structure.