我的绮丽宇宙行记

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which is the core, valutions or the topology

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Supposed that $|\cdot|$ is a non-arch discreate valution. Donate the integral elements ring as $\mathfrak{o}$, the maximal ideal as $\mathfrak{p}$. Specially, we require the residue field $\mathfrak{o}\backslash\mathfrak{p}$ is finite with P elements (then its multiplication group is a cyclic group with order $P-1$. By Hensel's Lemma, we can assume the generator is in the field k, as a (none 1) root of $f(X)=X^{P-1}-1$)

in this case, we have an important topological thm:

Thm 1. *in addition, we require $k=\bar{k}$, then $\mathfrak{o}$ is compact in k*

we can easily write down the Haar measure of k^+ and $k^\times$

the most interesting fact is that, as long as the k is complete, the normed spaces is unique !!!