

# Eine Woche, ein Beispiel

## 6.27 adèles and idèles

I would recommend this paper: <https://people.math.umass.edu/~weston/oldpapers/idele.pdf>.

After reading it, you may learn:

- The definition of two topology space adèles and idèles
- Basic properties of them (subspaces, canonical map...)
- Use this to prove the finiteness of the ideal class group and the generalized Dirichlet unit theorem

discrete subtopology  
compact quotient

Slogan: A good ambient space can make researched objects into "full lattice"!

objects

$$\begin{aligned} \mathcal{O}_K \\ \mathcal{O}_K^\times / U_K \\ K \\ K^\times \end{aligned}$$

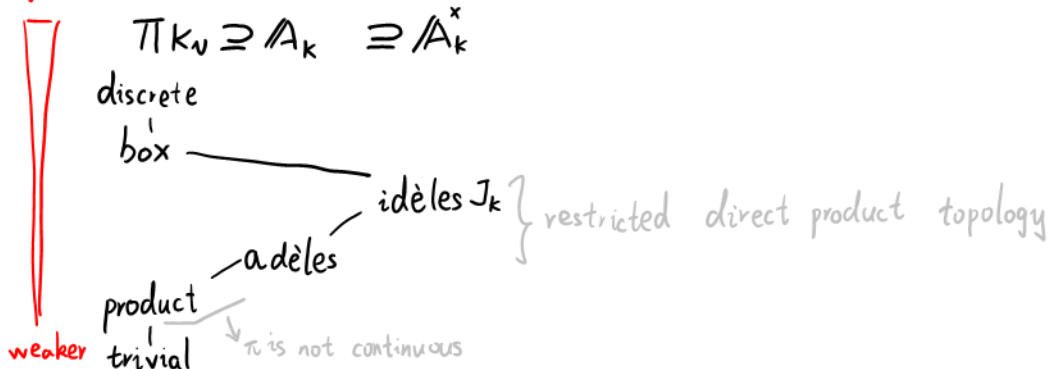
ambient space

$$\begin{aligned} \mathbb{R}^{r_1} \times \mathbb{C}^{r_2} \\ H \subseteq \mathbb{R}^{r_1+r_2} \\ \mathbb{A}_K \\ J_K^\circ \subseteq J_K \end{aligned}$$

$K$ : number field

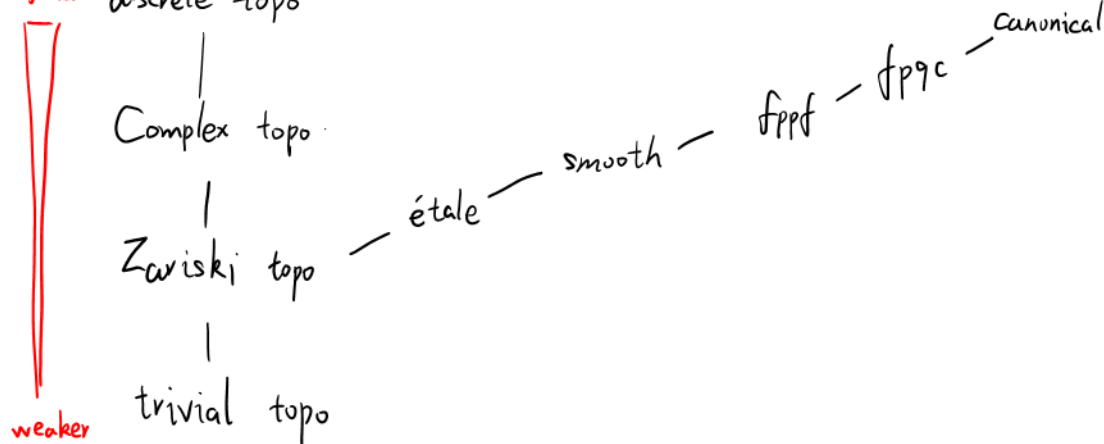
$\mathbb{A}_K, J_K^\circ$  are not linear space

stronger  
finer



weaker

stronger  
finer



weaker