Lecture 1

1. A little analysis:

$\mathbb{R}^n$, $x = (x_1, \dots, x_n)$

$\mathcal{S}(\mathbb{R}^n) \ni f \iff f : \mathbb{R}^n \longrightarrow \mathbb{C}$,

$$\sup_{x \in \mathbb{R}^n} \left| x^\alpha D_x^\beta f(x) \right| < \infty \quad \forall \alpha, \beta.$$

Schwartz' space

- A commutative algebra
- A Frechet space
- Dense in $L^2(\mathbb{R}^n)$

$\mathcal{S}'(\mathbb{R}^n)$, its dual, is the space of tempered distributions.