18.155 LECTURE 6, 24 SEPTEMBER, 2013

Very brief so far!

(1) Convolution
- $L^2 * L^2 \subset \mathcal{C}^0_\infty$. Commutative.
- $L^2 * L^1 \subset L^2$ by continuity.
- $L^2 * \mathcal{S} \subset H^\infty$.
- Density of H^∞ in L^2.
- $\mathcal{S} * \mathcal{S} \subset \mathcal{S}$.
- $\mathcal{S} * \mathcal{S}' \subset \mathcal{C}^\infty$.

(2) Supports
- Support of convolution.
- $\mathcal{C}^\infty_c(\Omega) = \mathcal{D}(\Omega)$.
- $\mathcal{C}^\infty(\Omega) = \mathcal{E}(\Omega)$.
- Compact exhaustion.
- Topology.
- Open covers.
- Partitions of unity.
- Support of a tempered distribution,

$$\mathcal{C}_c^{-\infty}(\Omega) = \mathcal{E}'(\Omega) \tag{1}$$

- $\mathcal{C}^{-\infty}(\Omega) = \mathcal{D}'(\Omega)$.