

**Definition:** A measurable space is a pair  $(S, \Sigma)$  where  $S$  is a set and  $\Sigma$  is a family of subsets of  $S$ , called  $\sigma$ -field or  $\sigma$ -algebra, satisfying the following axioms:

- $\emptyset \in \Sigma$
- if  $A \in \Sigma$  then  $\bar{A} \in \Sigma$
- if  $I$  is countable and  $\forall i \in I. A_i \in \Sigma$ , then  $\bigcup_{i \in I} A_i \in \Sigma$