Lecture on July 18th, 2018
Law of Rare Events

1 Law of Rare Events (See 5.2)

- Law of rare events is saying that the number of rare events happening is following a Poison distribution.

- Example: a sum of N i.i.d. Bernoulli(p) r.v. goes to Poisson(μ), when taking $N \to \infty, p \to 0$ in such a way that $Np = \mu$ fixed.

- Example of stochastic modeling, use Poisson distribution to model the number of accidents.

- Theorem on Poisson Approximation Error (Used "Coupling" in proof !).

2 Alternative Way to Define a Poisson Process (See 5.2)

- 4 postulates to define $N((a, b])$ and a theorem to claim that $N((0, t])$ defined in this way is a poisson process as defined in previous lecture.

- When parameter t refers to "time", usually it's called "Poisson Process". When t refers to "space", usually it's called "Poisson Point Process".