

***Advanced statistical methods and bayesian inference in scientific research, Geoplanet, 2024***

Problems for exam

1. Concept of probability, random variables and Kolomogorov axioms
2. Various interpretations of probability notion. Probability in physics.
3. Describe and discuss advantages and limitations of the Bayesian inference
4. Bayes theorem and Tarantola's concept of joint information
5. Methods of description of continuous probability distributions
6. Sampling probability distributions
7. Metropolis algorithm and Simulated Annealing
8. Markov chains concept and why we need them
9. Inversion as Bayesian inference