Astrostatistics: Thu 01 Mar 2017

https://github.com/CambridgeAstroStat/PartIII-Astrostatistics

- Lecture Demo Codes are online in directory lecture_codes/

- Example Class 2: **Tomorrow**: Friday, Mar 2. **2:00pm**. MR5

- Last time: MCMC (Metropolis-w/in-Gibbs, MC Theory)

- Today: Finish MCMC theory

- Saturday: Begin Gaussian Processes in Astrophysics

Finish up MCMC theory (on chalkboard)

- Irreducible, aperiodic, not transient —> unique stationary distribution

- The target (posterior) distribution is invariant under the Markov transition probabilities and is its stationary distribution

  - Detailed Balance

Human Learning of Gaussian Processes

- Classic Text: Rasmussen & Williams (2006)

  - "Gaussian Processes for Machine Learning",Ch 1-2,4-5

  - Free Online: http://www.gaussianprocess.org/gpml/

- Gelman, Bayesian Data Analysis 3rd Ed., Chapter 21

- Ivezic, Sec 8.10 GP Regression, (Ch 8 is Regression)

- Bishop: Pattern Recognition & Machine Learning, Ch 6

- "Practical Introduction to GPs for Astronomy" - D. Foreman-Mackey

  - http://hea-www.harvard.edu/AstroStat/aas231_2018/DForeman-Mackey_20180110_aas231.pdf