Astronomy 480/581 Journal Club

Fall 2024

There will be eight Journal Club activities over the course of the semester. The instructor will select the paper for each journal club at least three weeks prior to the journal club day.

The Journal Club activities work as follows:

- All students in the class must read each paper.
- One graduate student or a pair of undergraduate students will lead the presentation of each paper, which must include a discussion of the how that research presented had evolved before and since the paper. Presenters must also prepare answers to at least two questions posed by the rest of the class, which will be transmitted to the presenters by the instructor.
- Overview of the paper and related research should take ~15-20 minutes and answering the pre-selected questions could take an additional ~5 minutes. Additional discussion is encouraged for a total of no more than 35 minutes.
  - **You do not need to understand every detail of the paper.** Once you have identified the most important points and the takeaway messages, focus more on understanding the context of the research by looking up and skimming through past papers, as well as papers that cite yours. Don't worry about understanding every detail, only those that are critical to understanding and conveying the takeaway points.
  - To help you decide what is most important to present, first determine what is the one (max. two) takeaway message(s) of the paper; then, think of how you would get that message across in 30 s; next, think of what information you would add if you had 5 minutes; finally, expand this exercise to ~15 minutes. This should help you decide what is more important to touch on, and what can be left out entirely. In some cases, the method may be of utmost importance. In other cases, the background and past work in this area may be more important to highlight than the methods. **But do not lose sight of your takeaway message(s)!**
- Slides are not allowed, so you can choose to use the whiteboard and/or to simply scroll through the paper which will be projected on the screen. You may also project figures or tables from other papers, as well, if necessary for context. Just have all the papers you need open in the same browser window so that you can easily switch between them.
- **Connect the paper to lecture material as much as possible!**
- Students not assigned to a given paper will be required to submit questions about upcoming Journal Club papers as part of their homework assignments.
- **Email me or come talk to me if you have questions or want additional advice on how to present your specific paper. I am happy to help!**

Papers, presenters and dates:

1) *Evidence for Hidden Nearby Companions to Hot Jupiters* – Sep. 16 - Sarah

2) *Tilting Uranus via Spin-Orbit Resonance with Planet Nine* – Sep. 25 - Lily and Drew

3) *Photochemically produced SO_2 in the atmosphere of WASP-39b* – Oct. 7 – Jake and Andy

4) *Galileo Magnetometer Measurements: A Stronger Case for a Subsurface Ocean at Europa* – Oct. 7 – Sam

5) *Stable-isotopic anomalies and the accretionary assemblage of the Earth and Mars: a subordinate role for carbonaceous chondrites* – Oct. 28 – Sharleen and Alexis

6) *The geology of Pluto and Charon through the eyes of New Horizons* – Nov. 6 - Ella

7) *Rapid growth of gas-giant cores by pebble accretion* – Nov. 18 - Brett

8) *Halting type I planet migration in non-isothermal disks* – Dec. 2 - Charlie

Searching for additional sources (cited papers, or papers that cite the one you choose) to help better understand the paper, answer the pre-selected questions and prepare for the discussion:

I like to use the ADS digital library to search for papers. Find the paper you chose on that website. Then, in the menu on the left, you will see both "Citations" (subsequent papers that cite this one) and "References" (previous papers that are being cited by this one).