Physics 496
Introduction to Research

Lecture 3.0: Using Online Resources for Research

Where to start

Suppose you are about to start a research project on topic X.

What if you're new and you need to start from scratch?

Where do you go to learn the latest, cutting-edge, results on X?

Google? Wikipedia? arXiv? inSpire? Scopus?

- Google is often an efficient place to start if you're careful with choosing the results. But it can also present you with a relatively random list of results if you don't know what you're looking for.
- Google Scholar can be even better.
- Let's suppose we want to learn about topological insulators.
- If we don't know what a topological insulator is, we might want to start with a review article.

Review Articles

Review articles are long papers that describe the state of the art of a particular topic, often with an historical introduction.

Review articles can be found in many places. There are a few journals the specialize in review articles.

Reviews of Modern Physics (rmp.aps.org)
RMP “Colloquia” are especially good for beginners.

Annual Reviews (http://www.annualreviews.org/)

Reports of Progress in Physics (http://iopscience.iop.org/0034-4885/)

…

If you find a review article in a reputable journal, you can have (some) confidence in its quality.

If you already know something

- A review article may still be a good place to start for a refresher and to find some of the original literature in the references.

- Other resources:

  - The University Library!
    - You have online access to all the journals the U of I library subscribes to: http://openurl.library.illinois.edu/sfxlcl3/az

    - Search by topic through Grainger:
      http://search.grainger.uiuc.edu/top/

  - arXiv – Good for the latest, and for finding specific articles. Good for browsing only recent submissions, but only very coarse topic divisions.

- Scopus – covers everything
- inSPIRE – High Energy and related fields.