

Online Research: Websites and Resources

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Whether you choose to be an academic or industry-based physicist, you will most likely need to remain current in your discipline, keeping up with the most recent advances in the field. The Internet makes finding the latest and greatest papers incredibly easy, from the comfort of your own home. Some of these web-based resources are free, while others (usually journals) are subscription-based, so access will depend on your institution. The following is a sampling of such websites that you will find useful in the future, as well as now for your thesis research.

The arXiv (“archive”) -- <https://arxiv.org>

This free-to-use database of scientific research papers began in the early 1990s as a repository of mostly pre-peer review research publications (called “preprints”). At the time, the publication process in scientific journal was somewhat slow, and it was frustrating to get your work out into the world in a timely fashion. The arXiv was thus born, and radically changed the nature of research in Physics. Early criticisms about the arXiv (which are still valid today) centered around the fact that the papers were not peer reviewed, and so trusting their contents was *caveat emptor*. These days, the arXiv is the first stop for physicists who are hunting for the newest ideas on the block, or doing literature searches on previous ideas.

The INspire Database -- <http://inspirehep.net/>

Like arXiv, this primarily high energy physics resource is open to any web surfer. Unlike arXiv, it is not a repository for papers, but rather just a database of manuscripts in all stages of publication (preprint stage or final journal references). If you can’t find it on arXiv, check here. It also lists papers published in conference proceedings, as well as thesis works. Although INspire will tell you if a paper exists, there may or may not be a link to the manuscript.

In addition to references, INspire also has links to conferences (both past and future), jobs, and general information about researchers in high energy physics.

ResearchGate -- <https://www.researchgate.net/>

This is the LinkedIn for scientists, and it is strongly recommended that you start on your page yesterday! ResearchGate provides users a platform to post resumes, papers, and general thoughts on their scientific investigations. You can follow your favorite Physicists and request copies of their papers that might not be available to you, and you can also be followed by your growing fan base! You need to create an account to use it, but it’s free, which is the right price.

ORCiD -- <https://orcid.org/>

ORCiD is a “resume”-type site similar to ResearchGate on which you build your own page for networking. In fact, an increasing number of journals and funding organizations are linking to user profiles and their “ORCiD ID”.

Select Physics Journals

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When your research is ready for prime time, you submit it to a journal for peer-review and, eventually (hopefully!), publication for the world to see. But what is the best vehicle for your work, such that those who share your interest will best see it? This largely depends on your field, as each discipline and subdiscipline has their own favorite journal. Ideally, you want to choose a journal that has a fairly large **impact factor**, which is a score of how renowned they are. The higher the impact factor, the better! Here's a sample of some of the more widely-read journals in Physics, and their impact factors.

Nature – <https://www.nature.com/>

Nature and its various offshoots are perhaps one of the most prestigious journals in all of Physics-dom. If you get published here, you've made it to THE big league. Papers appearing in *Nature* tend to be extremely ground-break and sometimes paradigm-shifting discoveries. Since the journal's audience is fairly wide in scope and interest, articles in *Nature* tend to be slightly less technical than if they appeared in discipline-specific venues. As such, *Nature* publications are usually complemented by the latter in other journals.

The Physical Review -- <https://journals.aps.org/>

Published by the American Physical Society, the Physical Review is perhaps one of the most prominent journals in the discipline. Originally just "The Physical Review" when it debuted in 1893, it has since branched into several different area-specific focused publications. These include Physical Review A, B, C, D, E, X, Letters, and a number of "Special Topic" journals. The A-E series focus on specific areas of physics (A - ; B - ; C - ; D- particle physics, gravitation; E -). Physical Review Letters is one of the most prestigious of the journals, and is reserved for short papers that have significant groundbreaking implications and also have a wide appeal to the community.

Physics Letters A & B -- <https://www.sciencedirect.com/journal/physics-letters-a>
<https://www.sciencedirect.com/journal/physics-letters-b>

These two journals – dubbed PLA and PLB for short – are the “competition” for the Physical Review suite of publications. PLA is devoted to XXX, while PLB publishes work in the area of theoretical physics.

European Physics Journal – <https://www.epj.org/>

Originally a region-specific publication venue (hence the name), the age of the Internet has thrust the *European Physics Journal* to the global stage as a preferred source for disseminating work.

American Journal of Physics – <https://aapt.scitation.org/journal/ajp>

In a similar vein to the EPJ, the *American Journal of Physics* is a local-turned-international journal that focuses primarily on education research and items of pedagogical interest.

Other Wide Scope Journals

Modern Physics Letters A & B – <https://www.worldscientific.com/worldscinet/mpla>
<https://www.worldscientific.com/worldscinet/mplb>

International Journal of Modern Physics A – D

<https://www.worldscientific.com/worldscinet/ijmpa>

<https://www.worldscientific.com/worldscinet/ijmpab>

<https://www.worldscientific.com/worldscinet/ijmpac>

<https://www.worldscientific.com/worldscinet/ijmpad>

Reviews of Modern Physics – <https://journals.aps.org/rmp/>

Other Discipline-Specific Journals:

If you want to reach your audience and *only* your audience, you may choose to send your paper to a journal that specializes in the particular area in which you work. The list of such journals is exhaustive, but there are a few big players that merit mention here. To find others, Google is your friend!

Astronomy

- Astronomy and Astrophysics (A&A)
- The Astrophysical Journal (ApJ)

Biophysics / Biomechanics

- Journal of Biophysics
- Journal of Biomechanics

Gravitation

- Classical and Quantum Gravity (CQG) -- <http://iopscience.iop.org/journal/0264-9381>
- General Relativity and Gravitation (GRG) -- <https://link.springer.com/journal/10714>
- Journal of Cosmology and Astroparticle Physics (JCAP) -- <https://jcap.sissa.it/jcap/>

Particle / High Energy Physics

- Journal of High Energy Physics (JHEP) -- <https://jhep.sissa.it/jhep/>
- Nuclear Physics A & B

Physics Education

- Physics Education Conference Series (PERC)