Mr. Harwijne's Physics Project

Research Assignment

Physics research is on-going in many fields such as astrophysics, semiconductors, lasers, nuclear physics and low-temperature physics. Physicists love to publish information about their research projects on the internet. Your mission is to find one of these projects and report back to the class on it.

You may work in partners (ask if you want to work by yourself – if there is a good reason it will be allowed).

Topics **MUST BE UNIQUE** – once you have picked a topic see your teacher to make sure you are the first one to pick it. First come, first served!

Your report should be a Powerpoint presentation (or if your Web Tools consent form has been signed, can be Google Presentation) with 5 or more slides that answers the following questions:

WHO – who are the researchers (we want names)?

WHAT – is the research project they are engaged in? This is often the hardest part, because some of the descriptions of these projects are difficult to understand. You will have to explain the project in your report and to the class in terms that they can understand! There are hundreds of projects out there on the internet so please find one that makes sense to you. Some detail is needed here.

WHERE – what is the university or research lab name, and where is it located? We need full information eg. University of British Columbia, Vancouver, BC, Canada

WHEN – will the research be complete, or if it is already complete, when did it finish? Please note that your project should be RECENT – i.e. completed no more than 2 years ago.

WHY – the most difficult question – why is this research worth doing? How will it benefit our society, if at all? What will we understand afterwards that we didn't understand before?

Note that your report must be done in Powerpoint (or if your Web Tools consent form has been signed, can be Google Presentation). You will be given one or two lab periods to do research and write the report; after that you will have to work on this on your own time. It is not unusual for students to be able to complete the entire report in this time.

Search Engines and Websites

arXiv - (pronounced "archive", as if the "X" were the Greek letter *Chi*, χ) is a repository of electronic preprints, known as e-prints, of scientific papers in the fields of mathematics, physics, astronomy, computer science, quantitative biology, statistics, and quantitative finance, which can be accessed online.

The SAO/NASA Astophysics Data System - developed by NASA, is an online database of over eight million astronomy and physics papers from both peer reviewed and non-peer reviewed sources. Abstracts are available free online for almost all articles, and full scanned articles are available in (GIF) and (PDF) for older articles. New articles have links to electronic versions hosted at the journal's webpage, but these are typically available only by subscription (which most astronomy research facilities have). It is managed by the Harvard–Smithsonian Center for Astrophysics.

SPIRES HEP - is a database management system developed by Stanford University. It is used by universities, colleges and research institutions. The first website in North America which allowed remote users access to its database.

PDG - The Particle Data Group is an international collaboration charged with summarizing Particle Physics, as well as related areas of Cosmology and Astrophysics. In 2014, the PDG consists of 206 authors from 140 institutions in 24 countries.

Physics.org – Is brought to you be the Physics in Society team at the Institute of Physics.

New Journal of Physics - New Journal of Physics is an online scientific search engine that has academic databases with physics as core subject. Founded in 1998, it is co-founded by the Institute Of Physics and Deutsche Physikalische Gesellschaft. The search engine offers academic journals on diversified topics with physics as a central theme.

PLOS ONE - Founded in 2006, PLOSE ONE provides a free access platform to everyone searching for science-related information. All the articles publish on PLOS ONE are published after going through a strict peer-reviewed process. This academic database has a meticulous procedure for publishing a journal. You can find plenty of articles and academic publications using this platform.

DOAJ – Director of Open Access Journals (DOAJ) is yet another free search engine for scientific and scholarly resources. The directory offers a huge range of topics within scientific areas of study. It is among the richest sources of scholarly database with over 8,000 journals available on different topics. All the journals are thoroughly peer-reviewed.

Microsoft Academic Search - Microsoft academic research is yet another top search engine for academic resources. Developed by Microsoft Research, it has more than 48 million publications written by over 20 million authors. It indexes range of scientific journals from computer science and engineering to social science and biology.

Google Scholar - Google Scholar is a free academic search engine that indexes academic information from various online web resources. The Google Scholar lists information across an array of academic resources, mostly are peer-reviewed. It works in the same manner as Scirus. Founded in 2004, it is one of the widely used academic resources for researchers and scholars.