



Introduction to Using ComPADRE

Tutorial

Outline:

- Mission and goals of the ComPADRE project
- ComPADRE connections to professional societies and the National Science Digital Library
- Structure and collections of ComPADRE
- Searching and browsing the collections – Content
- Tools for registered users
- Features of the collections
- Contributors

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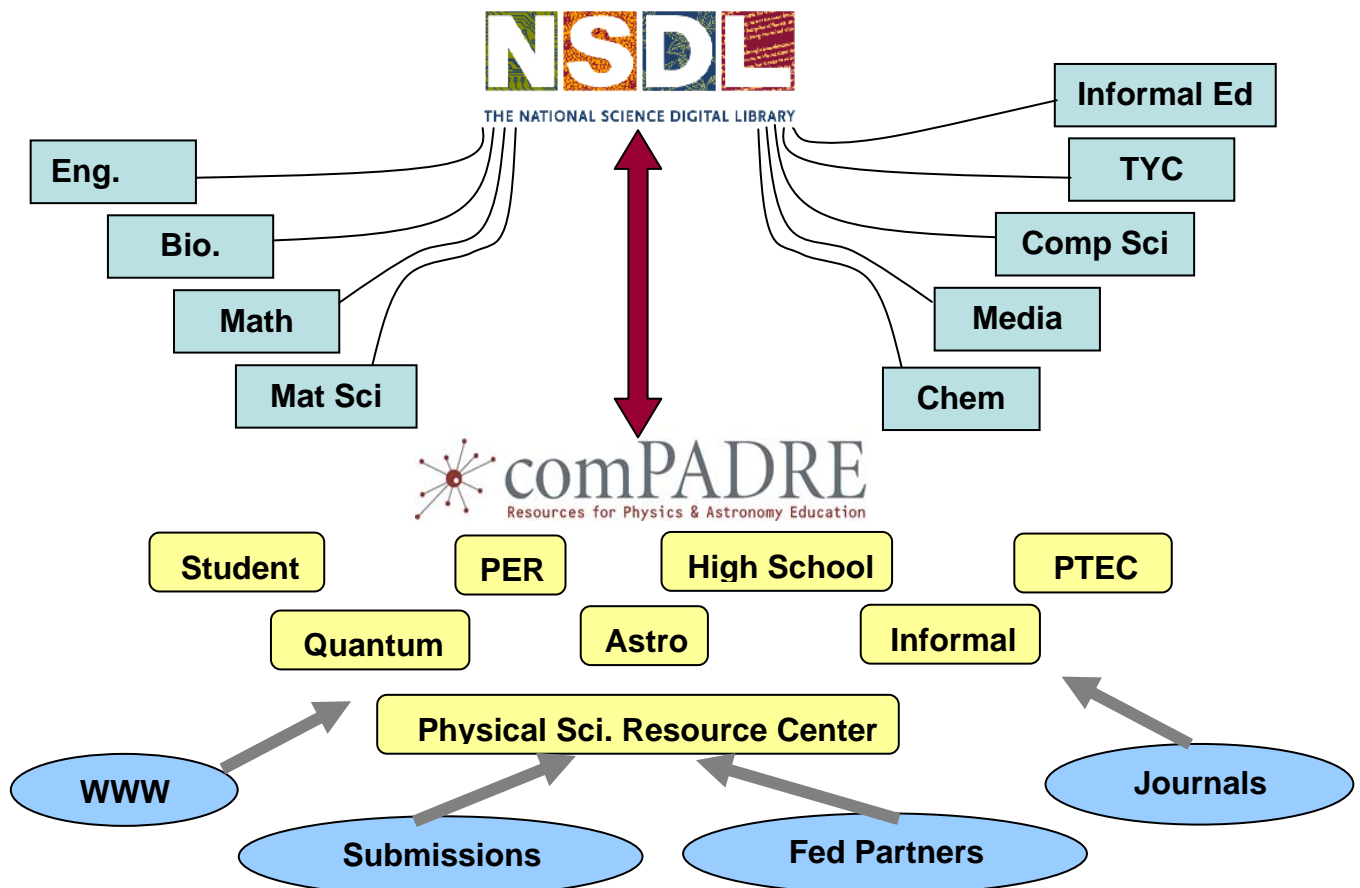
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An Introduction to ComPADRE

ComPADRE supports teachers and learners in Physics and Astronomy by collecting and cataloging online educational resources, by hosting resources without a stable web presence, by supporting the online tools for conferences and workshops, and by providing other web-based services. It is a network of collections, each serving a specific community. The collections are free and open to all to browse. Any registered user (again registration is free) may recommend materials; these resources are approved and cataloged by editors before appearing in each of the collections. Tools are available that allow users to communicate, share resources, and learn from each other. These include discussion boards, private messaging, and comments on resources. Users may create personalized, annotated collections of resources for their own use and share their personal collections with others.

The [American Association of Physics Teachers](#), [American Astronomical Society](#), [American Institute of Physics](#), [American Physical Society](#), and the [Society of Physics Students](#) collaborate on ComPADRE. This one of the main pieces of the NSF's National Science Digital Library (NSDL: <http://nsdl.org>)



Browsing the ComPADRE Collections:

Go to <http://www.compadre.org>. Collections are listed by the intended audience: student, teacher, researcher, etc.



Physical Sciences Resource Center- <http://psrc.aapt.org>
Comprehensive collection of resources from all topics



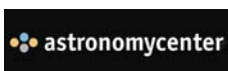
Physics Front- <http://www.thephysicsfront.org/>
Support for pre-college teachers, especially new physics teachers, at the High School level and younger



The Nucleus- <http://www.the-nucleus.org>
Supporting undergraduate physics students



Quantum Exchange- <http://www.thequantumexchange.org>
Resources to enhance quantum physics courses



Astronomy Center- <http://www.astronomycenter.org>
Resources and references for intro astronomy instructors



Physics to Go- <http://www.compadre.org/informal>
An online magazine of physics and astronomy for the public



PER Central- <http://www.compadre.org/per>
Resources and community tools for PER researchers and physics teachers interested in PER results



PTEC- <http://www.compadre.org/ptec>
Physics Teacher Education Coalition web site and resources



Open Source Physics- <http://www.compadre.org/osp>
Simulations and curriculum for upper level physics courses.

Under development:

Advanced Laboratories- <http://advlabs.aapt.org> Tips & techniques, manuals, and equipment for the upper division laboratory experience.

Computers and Computation in Physics Education- Computational physics and the integration of computation into the physics curriculum.

Introductory Undergraduate Physics- Tools and curriculum for introductory physics, from calculus-based courses to “physics for poets”.

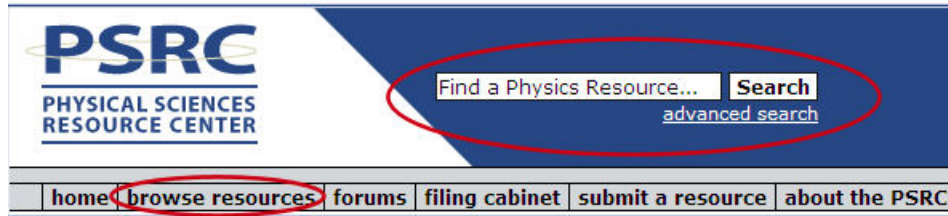
Relativity- Recommended materials for courses in relativity.



Finding Resources

1) Go to the PSRC: <http://www.compadre.org/psrc>

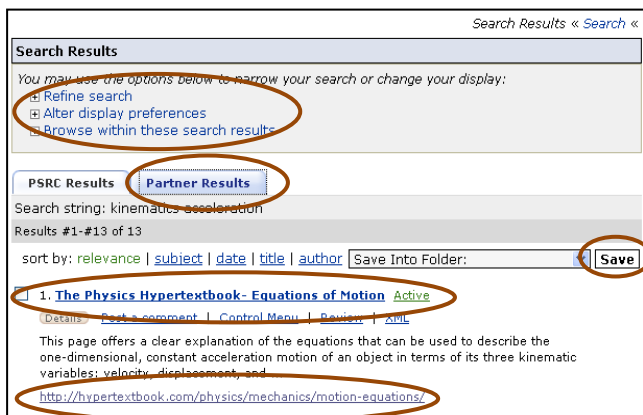
There are two basic approaches to finding resources in the collections:



2) Search: Search allows the user to find materials in the database by keywords, topics, author name, or URL. Because the database is still growing, general searches are more likely to be successful than specific searches.

Advanced search allows access to more detailed information: topic, audience, and type of resource.

3) Browse: Browse allows the user to look at resources by level and topic (depending on the collections). The different collections have different ways to browse that are based on the audience.



4) Search and Browse

Results: Search on topics that might be covered in a physics course, such as kinematics, momentum, or Newton's Laws. The Search Results Page is similar to an index to a catalog. Features & Tools include:

- Refine the search (create a more detailed search)
- Search Partner Collections all from a

single ComPADRE search (NSDL, Physlets/OSP, MERLOT, ADS, etc.)

- Save resources to your personal filing cabinet
- Links to details about the resource from the catalog record
- Link directly to the resource



Tools for Registered Users

The ComPADRE collections are free and open to all who visit. Users who register and login get additional tools and features. A user is registered on all ComPADRE collections whenever they register on any collection.

1) Go to the PSRC: <http://www.compadre.org/psrc>

2) Click on Register: The link to register is the second tool in the left-hand navigation bar.

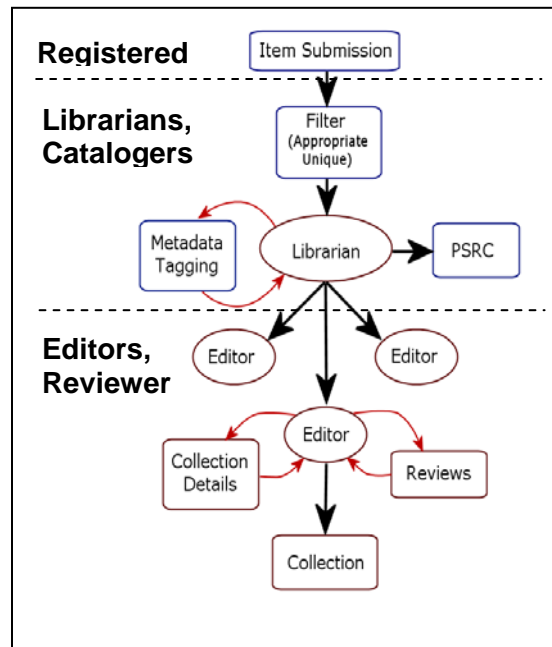
3) Enter your information: The required information fields are at the top. Your email address is used as your login name on ComPADRE. Fill in optional information if you wish other users to know a little more about you.

4) Register: Click on the "Register" button at the bottom of the form.

5) Your Profile: You may add more contact information if you wish. You may always return to this page from the "My Account" tool link in the left-hand navigation bar.

The tools that require a login include:

- **Discussions:** Discussion forums are available on all collections, and are used for a variety of different purposes. See, for example the student collection (<http://www.the-nucleus.org>) and "Adopt-a-Physicist" (<http://www.adoptaphysicist.org>).
- **Submit Resources:** Registered users can submit suggested items to ComPADRE. The process for review and posting of these recommendations is shown to the right.
- **Comments:** Registered users can add comments about items in the collection.
- **Messaging:** Messages can be left for other registered users with the Private Messages system.
- **Filing Cabinet:** Your personal collection!





The Filing Cabinet

The filing cabinet is for users to save, organize, and annotate resources that they have found on ComPADRE. It also has tools to share folders with other users and create formatted bibliographic citations for resources.

1) Be sure you are logged in.

2) Go to the Filing Cabinet: Click on the link to the personal filing cabinet in the menu.

Filing Cabinet

The Filing Cabinet is your own personal storage system - you can create folders, name them, and then 'bookmark' items for later perusal. Your folders and bookmarks will exist across all of the comPADRE collections.

To bookmark an item, simply find it using the search or browse functions, and check the box next to the item. At the top of the search page, choose the folder you wish to save your selections into and click 'File', and it will bring you to your new folder.

In addition, saved items can be viewed in multiple citation formats or exported for your favorite reference editor.

Shared Folders

- Shared Materials (0)

Private Folders

- quantum_physics (0)

Manage My Folders

Open [dropdown] the [dropdown] folder [button]

Create a new root folder

3) Create Folders: Create folders and sub-folders in your Filing Cabinet for storing resource links. Use "Manage My Folders" for moving, deleting, renaming, annotating, and sharing folders. An initial default folder is created for all users. Items can be copied or moved between folders.

Quantum Exchange Results | Partner Results

Search string: spin

Results #1-#10 of 19 | Next >>

sort by: relevance | subject | title | author

quantum physics [dropdown] File

File Into Folder:
quantum physics
Shared Materials

1. **Open Source Physics: Quantum Spins**
Details | Post a comment | Relations
OSP Spins is an interactive computer program that simulates Stern-Gerlach-type measurements on spin-1/2 and spin-1 particles. This package provides the user with a sequence of tutorials and exercises to help them explore ...
http://www.opensourcephysics.org/apps/qm_spins/index.html

2. **SPINS Java Homepage**
Details | Post a comment | Relations
Spins is an interactive computer program that simulates Stern-Gerlach measurements on spin 1/2 and spin 1 particles. This software is used as part of the "Paradigms in Physics" curriculum. This can be used as an example ...
<http://www.physics.orst.edu/%7Emcintyre/ph425/spins/index.html>

4) Add items: Add items to the Filing cabinet from a search or browse or the detail page for the resource. Use the check boxes and "File Into Folder" drop down. You may add a personal description to the items in your filing cabinet. Bibliographic citations can be generated for items in folders.

5) Folder Sharing: You may make a folder sharable for others to view.

Example: Profile -

<http://www.compadre.org/psrc/user/ProfileDisplay.cfm?ID=5>

Shared Folder -

<http://www.compadre.org/psrc/filingcabinet/UserBookmarks.cfm?UID=5>



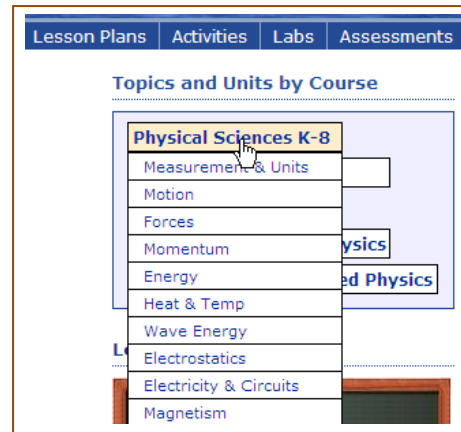
To aid new teachers, The Physics Front editors have selected high quality items from the catalog and organized them by topics and course type.

1) Go to The Physics Front: <http://www.thephysicsfront.org>

On the right side of the page is an interface listing standard pre-college physics course types. In each course are listed standard topics covered in classes.

2) Select “AP Physics” and Electrostatics:

There are several units under this topic on particular sub-topics, approaches to teaching, and special issues.



AP/Calculus-Based Physics “Static” Electricity Units

Characteristics of “static” electricity include: 1)The number of electric charges within a material may not be equal, 2)velocity of electrical forces (attraction and repulsion) can reach the speed of light, 3) electrical forces (attraction and repulsion) can reach the speed of light, 4) electric fields (as opposed to magnetic fields) become velocity dependent, also called “electrostatic fields” or “e-fields.” Units are not listed.

- + [Teaching About Electrostatics \(8\)](#)
- + [Electric Fields \(9\)](#)
- + [Electrostatic Forces \(6\)](#)
- + [Capacitors and their Effect on Electricity \(2\)](#)
- + [Electric Charge \(4\)](#)
- + [Franklin and Electrostatics \(7\)](#)
- + [Static Electricity for the Early Grades \(1\)](#)

3) Explore the topics:

The resources in each topical area are divided into student activities, reference materials, content support teachers, and assessments.

Creation of these coordinated units requires experience with teaching the topics. We are looking for volunteers to help in the development of these resources for new (and other) teachers.



Submitting Resources

Recommendations from users help with the vitality and growth of ComPADRE. There are two submission forms:

Simple Form « Suggest a Material «

Submit a Suggestion

Simple Form **Full Form** Suggestion Archive

Fill in the form below to suggest a material for the PSRC collection. An editor will review your submission and, if suitable, a full record for the material will be created. Please use the [Full Form](#) for non-English materials.

You may view the status of [your past suggestions](#) here. If you have any questions about a submission, or if you are an author who wishes to make a large number of submissions, please contact the webmaster at psrc@aapt.org.

* **Existence:** Before continuing, please [check](#) to ensure the resource isn't already in our approval process.

* **Item Type:**

* **Title:**

* **URL:**

Simple Form: Users can submit quick suggestions for additions to the catalog. The library staff processes the catalog record. The user provides:

- Basic type of resource (Usually "Web")
- Title
- URL
- Description
- Author/Editor/Publisher name (Optional)
- Other Comments (Optional)

Full Form: Users can submit any or all details about the resource. Besides the information given in the Simple Form, the Full Form also includes:

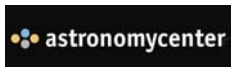
- Subject(s)
- Keywords
- Grade Level(s)
- Audience(s)
- Details about Author(s)/Editor(s)/Publisher
- Copyright and cost
- Format of the material
- Copyright information
- Cost information

Submitted materials are directed to the collections where they are most appropriate by the Librarians and Editors. A single submission can show up on multiple collections.





Other Collections, Other Tools



The Nucleus: <http://www.the-nucleus.org>

Summer Research Database: This “Opportunity Database” provides information for students about summer research positions across the country. The listings are provided by the sponsors of the research programs. A similar resource is being populated with information about scholarships of interest for physics and astronomy students.

Student Clubs: SPS chapters and other student organizations can have a web presence on The Nucleus to highlight their activities. A “Club of the Month” contest is run using this interface.

SPS Chapter of the Month
University of Louisville SPS Chapter
- Other SPS Chapters -

Check out the **Nucleus Lounge** and take part in our **Haiku Contest!**

Exercise your right to vote in our **polls!**

The Student Lounge: The Lounge is a new area of the Nucleus for communication between students. It includes discussion boards, challenge problems, polls, and contests. The Physics Haiku and Physics Limerick contests are two favorites.

Textbook Reviews: The Textbook Review section includes many standard undergraduate textbooks and student comments about them. In the future more formal reviews will be solicited from students.

PER-CENTRAL: <http://www.per-central.org>

Reviews in PER: As part of the PER collection, series of review articles are being assembled by leaders in the field on various topics. Volume 1 focused on the introductory calculus-based physics course. Volume 2 (under development) will provide resources for getting started in PER.

Bibliography: The bibliography contains an extensive and growing collection of articles from the Physics Education Research literature.

Groups & People: The “Groups and People” area gives PER researchers a presence on PER-Central to describe their work and link to their research and other projects.

Research & Dissertations: PER Dissertations are being collected and made available through the “Research Work” section of PER-Central. ComPADRE is hosting dissertations in an effort to build a central collection of these important research results.

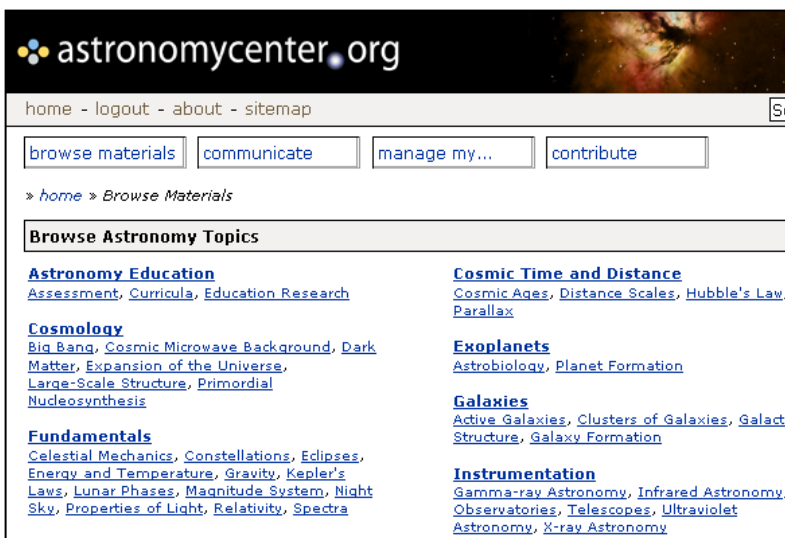


PERC: PER-Central is the web-home for the 2008 Physics Education Research Conference in Edmonton Canada. The PERC talks and papers will be available through ComPADRE after the conference.

Astronomy Center: <http://www.astronomycenter.org>

Resources for all: This collection contains resources for all teachers of introductory astronomy with different backgrounds and experience with the subjects.

Advanced Browse: A very successful browse interface was developed with the Astronomy Center editors showing the topics covered in a glance.



Physics to Go: <http://www.physicstogo.org>

Physics to go is an online “magazine” providing images and information about physical systems and concepts. It contains several features the change every two weeks, with all back features archived. These include:

Physics in Your World: Images of real-world experiences that illustrate applications of physics. Each image includes an brief explanation of the image and links to other online resources that provide a deeper explanation.

From Physics Research: Images and explanations of recent advances in physics research.

Physics at Home: Real and virtual experiments and activities that can be done at home. These are related to the physics of the Physics in Your World or From Physics Research features.

Worth a Look: Other information resources covering the physics topic considered in the issue.



Open Source Physics: <http://www.compadre.org/osp>

The Open Source Physics (OSP) collection is a collaboration with an NSF-funded curriculum development project. ComPADRE is providing the library tools for organization and discovery of the OSP materials. The materials are being hosted on the ComPADRE servers. Similar collaborations with other curriculum development projects are being considered.

The Quantum Exchange: <http://www.thequantumexchange.org/>

This is an example of a topical collection for a physics majors' class. Materials that provide visualization of quantum systems are an important focus.

Adopt-a-Physicist: <http://www.adoptaphysicists.org>

This is a web-based outreach program where high school classes select a physicist to be a virtual class speaker. The students can use the physicist's profile and online discussions to learn more about scientists and science.

The People:

Finally, a quick thank you to all the people involved with the ComPADRE project and who make things happen:

- Editors: Mario Belloni, Wolfgang Christian, Greg Comer, David Donnelly, Cathy Ezrailson, Vince Kuo, Ed Lee, John Stewart, Kendra Rand, Chris Irwin, Taha Mzoughi, Ramon Torres-Isea, Greg Comer, Gina Brissenden*, Bob Beichner*, Marc Gagné*
- Technology & Management: Lyle Barbato, Caroline Hall, Danny Johnson, Matt Riggsbee, Thad Lurie*, Swapna Gurumani*
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- Evaluation: Elizabeth Bolton, Cecilia Brown, Jutta Wunder, Flora McMartin
- Liaisons and Advice: Jessica Clark, Beth Hufnagel, Gregor Novak, Lisa Grable, Stephen Pompea, Gunther Eichorn, Michael Kurtz
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* - retired

