# ComPADRE Collection Design Document:
# Physics to Go (PTG)
# May 28, 2007

## Target Audiences

1. **Self-motivated physics learners**: They are learning physics for its own sake. For the most part, they are assumed to have a physics background at the level of an introductory course. (But see number three below.)
2. **Physics learners in school in an introductory physics course**: They can search and browse for information and for simulations to help with conceptual development.
3. **Physics learners in elementary school or middle school**: They can search and browse for activities and for introductory articles about physics.
4. **Teachers of introductory physics**: They can search for simulations to help students with conceptual development, for information on various topics in physics. Also, they can search for images to serve as examples of everyday phenomenon explained by physics or as examples of interesting research results.
5. **Teachers of physical science of all levels**: They are can find activities for younger students, such as the Exploratorium Snacks.

## Criteria for Collection Resources

1. **General criteria**

a. The typical resource consists of text and images, with very few, if any, equations.
b. A typical resource is accessible to anyone who has completed an introductory conceptual physics course.
c. In almost all cases, the author is a physicist or some other kind of physical scientist.

2. **Types of resources**

a. Illustrated articles--These describe a phenomenon or concept, typically with photos and diagrams. (examples-- Physics in Action articles from Physics Central)
b. Simulations-- Typically Java applets, these on-screen animations enable users to change variables and observe the results. (examples--PhET simulations)
c. Activities--Hands-on activities, using inexpensive materials, with a discussion of the physics involved (examples—Exploratorium Snacks)
d. Image Galleries-- Typically single-topic collections of images, each annotated with a description of the physics. Often these images are artistic. (Examples-- Art of Science 2005 and 2006)

## Some Themes of Physics to Go

1. Modern physics (i.e., 20th and 21st century physics), especially the wave nature of matter
2. The wide range of phenomena that physics explains
3. Physics and art
4. Physics in other fields of science and engineering

**Homepage Features With Images**
1. Physics in Your World: The photo shows something that a person could observe without sophisticated instrumentation. The text provides links that explain the physics or introduce related phenomena.
2. From Physics Research: The image shows either experimental results, theoretical predictions, or a simulation. The text provides links that explain the physics or introduce related phenomena. The research topic is chosen so that users who have completed an introductory physics course have the background to understand the physics.
The more artistic the image, the better.

**Homepage Features without Images**
1. Physics at Home: This feature presents activities, either with tangible materials or on a computer screen. Links provide information about the physics or related activities.
2. Worth a Look: This feature typically presents two or three links on a single topic.

Notes:
-- All homepage features change on the 1st and 16th of the month. Earlier features are archived.
-- Occasionally, the homepage focuses on a single topic (for example, geophysics, on 5/1/07; or diffraction, on 6/01/07)

**Anticipated Collection Development as of 5/28/07**
1. Going through Physics Central and adding the sites in the "Links" section of each "Physics in Action" piece to the collection.
2. Making each homepage feature (see above) into a resource. This would permit the features, and especially the images, to be easily accessed from a topical search.
3. Establishing "relations" among resources in the collection. For example, the homepage features would be related to the resources that they link to.
4. Identifying particularly high-quality sites and labeling them with an icon; these sites would cluster at the top of a search return. The high-quality sites would be identified, and possibly reviewed, by an outside reviewer.