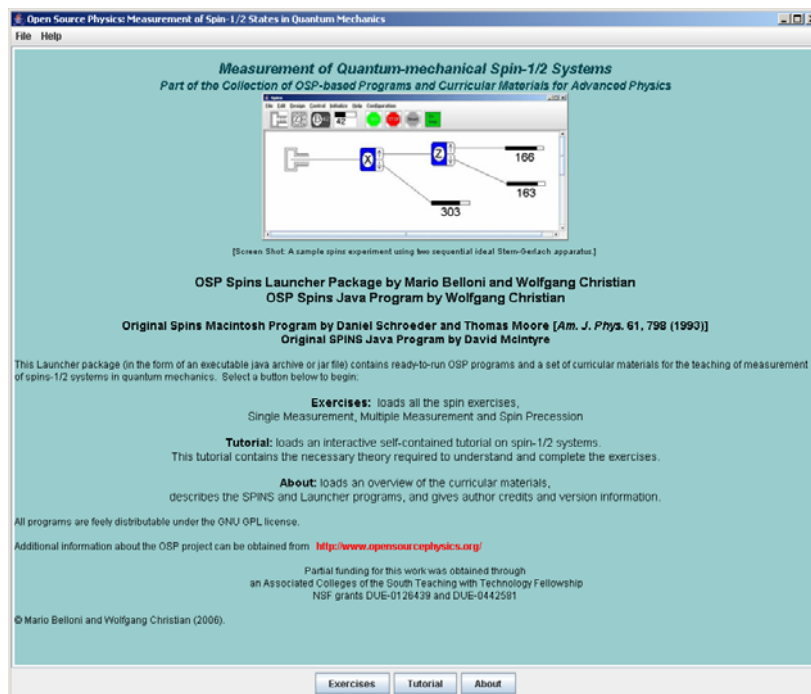


Before You Begin

About The OSP Spins Launcher Package

Double-click the osp_spins.jar file to execute it. The OSP Spins Splash Screen loads and you should see the following screen displayed:



The OSP Spins Launcher Package Splash Screen.

The default setting of osp_spins.jar loads a splash screen with three buttons: **Exercises**, **Tutorial**, and **About**. These buttons load custom launch sets (called xsets because they are loaded into Launcher using a file with an “xset” extension) which can be accessed once the Launcher is running. These custom launch sets create a table of contents with links to programs and html documents. These launch sets also allow instructors to launch only one piece of curricular material, a related group of materials, or the entire package of curricular materials.

In order to get to the materials, you must first click one of the buttons located at the bottom of the window. Doing so loads a particular module.

Curricular Modules

OSP curricular material is organized using the OSP Launcher program written by Doug Brown. Launcher allows us to distribute programs, documentation, and curricular material in a single easily modifiable package. The OSP Spins Launcher package can be accessed by double clicking on the osp_spins.jar file. Click on the **Exercises** button near the bottom of the splash screen in order to load curricular materials for spin-1/2 systems into Launcher. This material is organized using tabs which appear at the bottom of the program as follows:

- **Spin-1/2: Tutorial:** An interactive self-contained tutorial on spin-1/2 systems. This tutorial contains the necessary theory required to understand and complete the exercises.
- **Spin-1/2: Single Measurement:** Single measurement exercises in which a beam of spin-1/2 particles is incident on one ideal Stern-Gerlach apparatus. These exercises show how a single measurement of spin affects the original spin state. These exercises include those that require students to determine either the original spin state or the orientation of an unknown analyzer.
- **Spin-1/2: Multiple Measurement:** Multiple measurement exercises. These exercises show how multiple measurements of spin affect the original spin state. These exercises include those with two and three ideal Stern-Gerlach apparatus and a ‘which-way?’ experiment in which the outcome of the experiment is changed by watching the ideal Stern-Gerlach apparatus.

- **Spin-1/2: Spin Precession:** Spin precession exercises in which a beam of spin-1/2 particles passes through a magnetic field for a given time, causing the beam to ‘precess.’ These exercises show how an additional magnetic field affects the original spin state.
- **About:** Gives an overview of the curricular materials, describes the OSP Spins and Launcher programs, and gives author credits and version information.

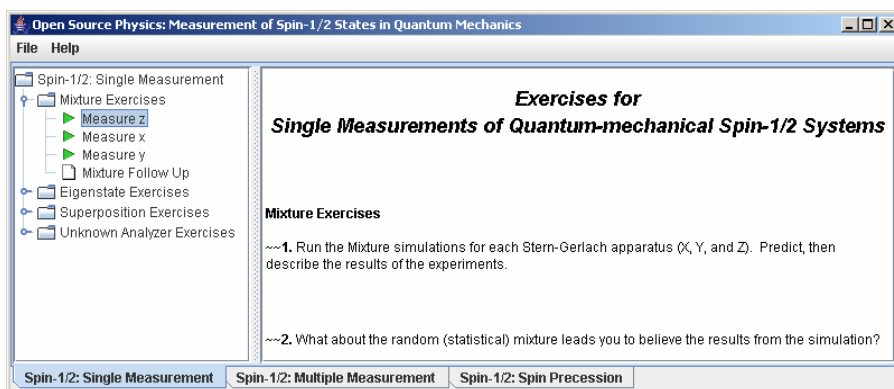
Executing the osp_spins.jar file and either clicking a button, or using the **File|Open Internal** menu item, accesses the following modules:

- **osp_spins:** the default, loads the main splash screen with buttons.
- **osp_spins_ex:** loads all the spin exercises (**Exercises** button).
- **osp_spins_tutorial:** loads only the **Tutorial** tab (**Tutorial** button).
- **osp_spins_all:** loads all the materials.
- **osp_about:** loads the **About** tab (**About** button).

Navigation

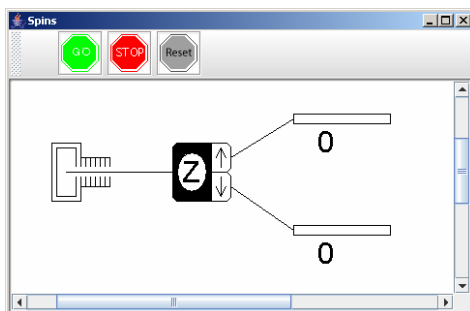
Open a particular module. When you do so, notice that there are two panes. The pane on the left is an Explorer pane (for navigation and organization), while the pane on the right is the Description pane. Note also there are tabs at the bottom of the Launcher window that can change what is displayed in the panes. These tabs refer to a collection of materials we have developed for the measurement of spin-1/2 systems in quantum mechanics. For more material we have developed, see Chapter 15, “Authoring Curricular Material,” of the book: *Open Source Physics: A User’s Guide with Examples* [W. Christian, Addison Wesley, 2007].

Launching Nodes



The curricular module that loads when the **Exercise** button is clicked from the opening splash screen. This module can also be accessed from the **File|Open Internal** menu item by selecting the xset: **osp_spins_ex**.

To launch a particular piece of curricular material, navigate to a launchable node, one with a green arrow. Double-click that arrow and a program will launch. For example, within the Exercises curricular module, navigate to the *Spin-1/2: Single Measurement* tab, and open up (single-click) the *Mixture Exercises* folder. Double-click the *Measure x* node. You should see the figure below. Click the “Go” button to see this ideal Stern-Gerlach experiment animated. To move on to something else, simply close this program, and select another node.



The OSP Spins program launched with a custom xml file loaded with initial parameters.