More Rappture Objects

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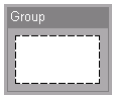
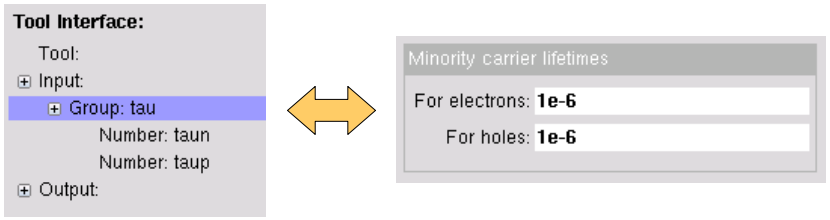
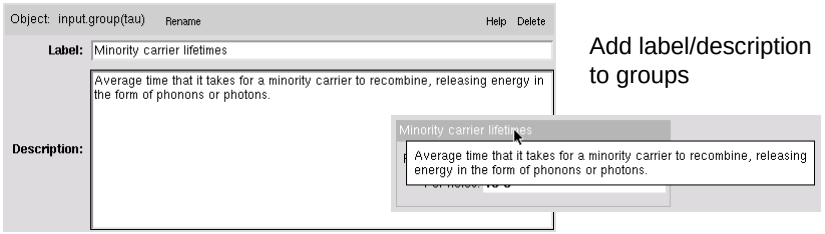
Groups



Use Group objects to group inputs together



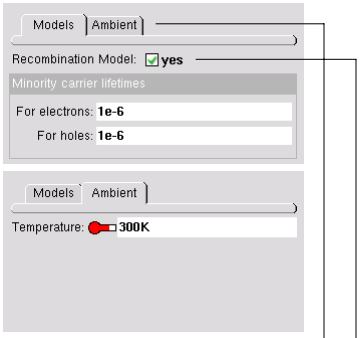


Add label/description to groups

Group of Groups

Tool Interface:

Tool:
- ⊞ Input:
  - ⊞ Group: tabs
    - ⊞ Group: models
      - Boolean: recomb
      - ⊞ Group: tau
        - Number: taun
        - Number: taup
    - ⊞ Group: ambient
      - Number: temp



Group of just groups ⇒ tabs

Group with other elements ⇒ box with group contents

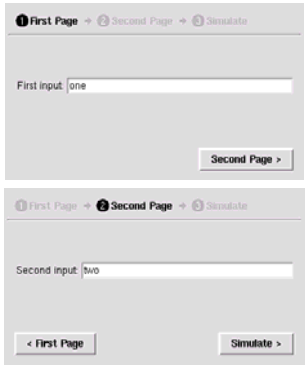
3

Phase

Use Phase objects to create input panels

Tool Interface:

Tool:
- ⊞ Input:
  - ⊞ Phase: one
    - String: first
  - ⊞ Phase: two
    - String: second



* Use this sparingly--only if there are already lots of inputs and groups.

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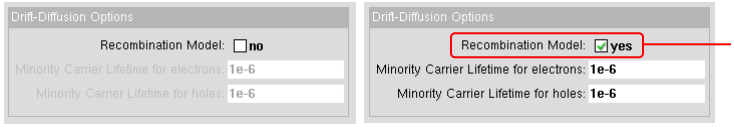
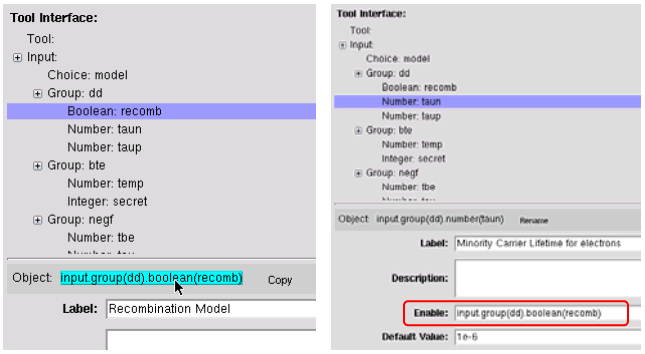
Use Enable condition to enable/disable inputs



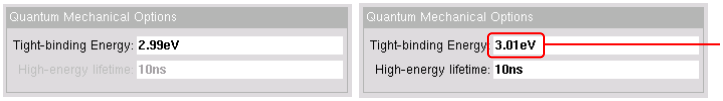
boolean enables/disables number entries



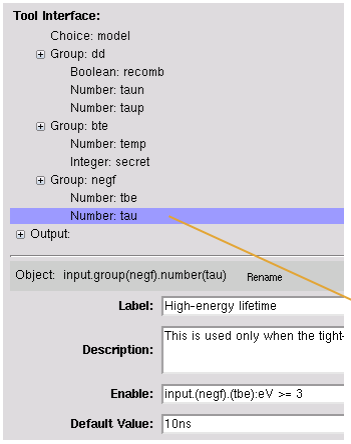
2 Paste (cntl-Y) into the Enable condition of each number

1 Copy the path for the boolean

Enable condition can be an expression



number value enables/disables number below it



Get the value of the tight-binding energy number

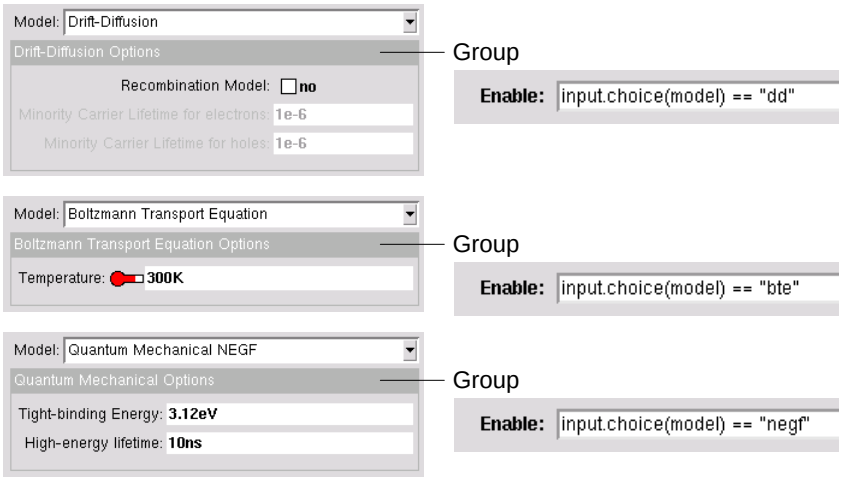
Convert to eV

```
input.(negf).(tbe):eV >= 3
```

Enable High-energy lifetime whenever `tbe >= 3`

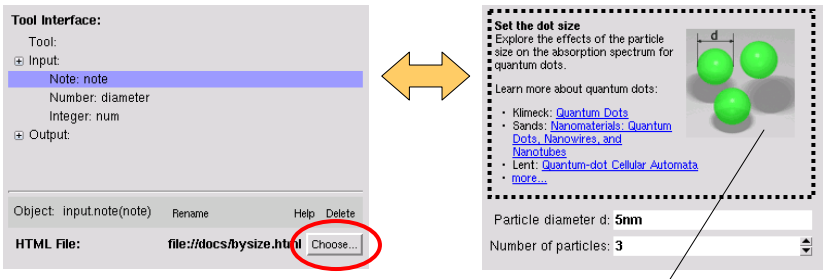
Enable/disable groups

Use Enable condition to enable/disable whole groups

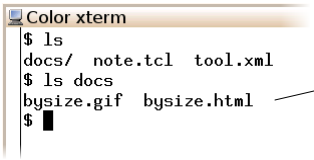


Notes

Use Note objects to embed documentation



Set an ordinary HTML file



Can reference images and other HTML files in the same directory, or using absolute http:// paths

Notes

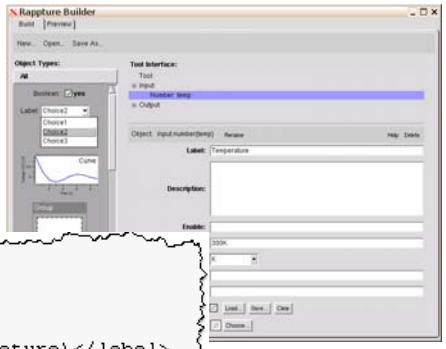
Note can pop up external web sites

Example: bysize.html

```
<html>
<body>
<p>
<img style="float: right; margin: 8px;" src="bysize.gif"/>
<b>Set the dot size</b><br/>
Explore the effects of the particle size on
the absorption spectrum for quantum dots.
</p><p>
Learn more about quantum dots:
<ul style="margin: 0px; padding-left: 16px;">
<li>Klimeck: <a href="http://www.nanohub.org/resources/189">Quantum Dots</a></li
<li>Sands: <a href="http://www.nanohub.org/resources/376">Nanomaterials:  Quant
<li>Lent: <a href="http://www.nanohub.org/resources/148">Quantum-dot Cellular Au
<li><a href="http://www.nanohub.org/resources/tags/quantumdots">more...</a></li>
</ul>
</p>
</body>
</html>
```

Under the hood: XML

The builder is great, but it's not perfect

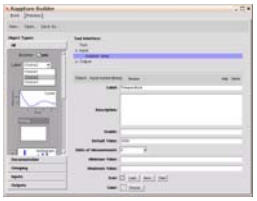


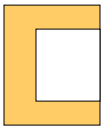

```
  <max>1000K</max>
  <default>300K</default>
  <preset>
    <value>300K</value>
    <label>300K (room temperature)</label>
  </preset>
  <preset>
    <value>77K</value>
    <label>77K (liquid nitrogen)</label>
  </preset>
</number>
```

Where are the preset controls?

Under the hood: XML

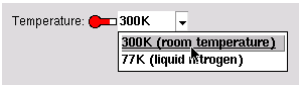
Builder





skeleton program

tool.xml

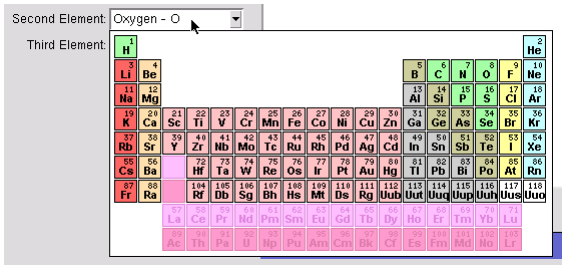



```
<?xml version="1.0"?>
<run>
  <tool>
    <title>Example with temperature</title>
  </tool>
  <input>
    <number id="temp">
      <about>
        <label>Temperature</label>
      </about>
      <default>300K</default>
      <units>K</units>
      <preset>
        <value>300K</value>
        <label>300K (room temperature)</label>
      </preset>
      <preset>
        <value>77K</value>
        <label>77K (liquid nitrogen)</label>
      </preset>
    </number>
  </input>
</run>
```

You can add stuff like this by hand

Atoms

Prompt for elements from the periodic table




```
actinoid
alkali-metal
alkaline-earth-metal
halogen
lanthanoid
metalloid
noble-gas
other-non-metal
post-transition-metal
transition-metal
unknown
```

```
<input>
  <periodicelement id="second">
    <about> <label>Second Element</label> </about>
    <default>O</default>
    <inactive>lanthanoid actinoid</inactive>
    <returnvalue>symbol</returnvalue>
  </periodicelement>
  …
```

```
weight
number
name
symbol
all
```

Exercise #3: Add options to Spirograph

- Add a note at the very top
- Add a “model parameters” tab and a “comments” tab
- When comments are enabled, produce an output string with comments