



0. Remind students of interaction (see image above); x, y, and z directions. Be sure students can view the  $p_x$ ,  $p_y$ , and  $p_z$  histograms. You may want students to discuss these in small groups before a large-group discussion.
1. In what ways are your three histograms ( $p_x$ ,  $p_y$ ,  $p_z$ ) similar?
  2. In what ways are the three histograms ( $p_x$ ,  $p_y$ ,  $p_z$ ) different?
  3. What is the approximate average momentum value in each of the 3 directions: x, y, and z? Does this surprise you? Why or why not?
  4. If all of the initial momentum from the neutrino is in the z-direction, why do you think the  $p_x$  and  $p_y$  are each spread over a range of values?
  5. What might be done to increase your confidence in the results?