

Rotations and geometry debugging

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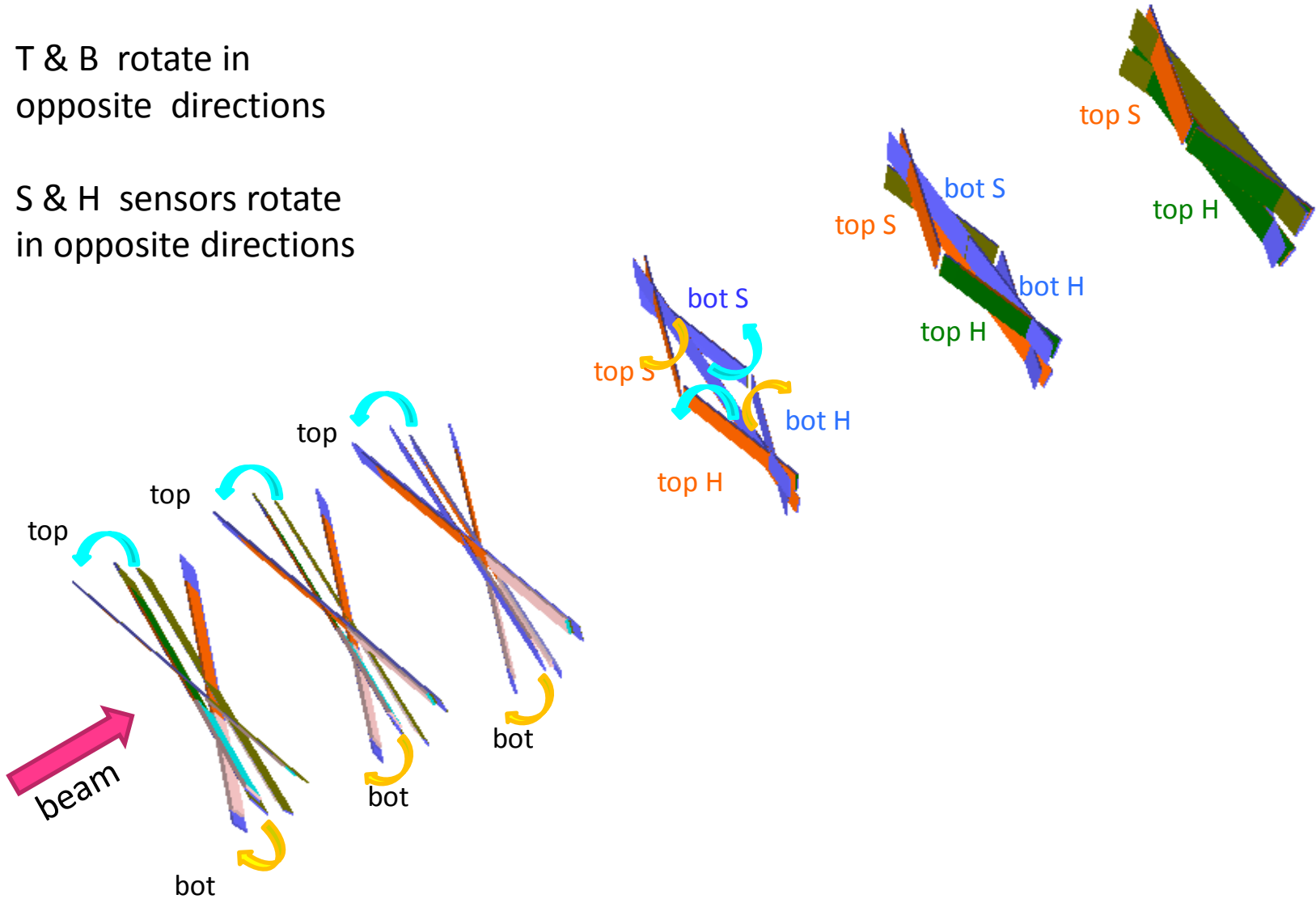
Debugging/tests procedure

- Tests of the effect of known misalignment injected as offsets in the compact.xml file (the same way millipede does)
 - Same misalignment for stack of sensors, one (two) stack at a time, top and bottom (at the same time):
 - 123 Ax, 123 St
 - 456 slot Ax, 456 slot St
 - 456 hole Ax, 456 hole St
- 1st test: macroscopic misalignment -> +300 mrad (~17 deg)
 - Look at the geometry display “by eye”
 - Check if the rotation is consistent for all modules in the same stack
 - No reconstruction (volumes clash!)
 - Results: general consistency
- 2nd test: smaller misalignment injected (+10 mrad)
 - check sensor axes orientation in uvw RF (gbl output, downstream reconstruction)
 - compare with “nominal” (non-rotated) geometry: do changes occur for the expected components?
 - Note down inconsistencies
 - Results:
 - Full consistency for U rotations, all sensors
 - Full consistency for W rotations, all sensors
 - V rotations:
 - Some problems for V 123-axial & 456 slot T&B (unsuccessful reconstruction, problems with GBL)
 - » Need to go in the detail of each sensor and check where the problem occurs
 - Other V rotations: check in progress

Big U +rotations, axial sensors

T & B rotate in opposite directions

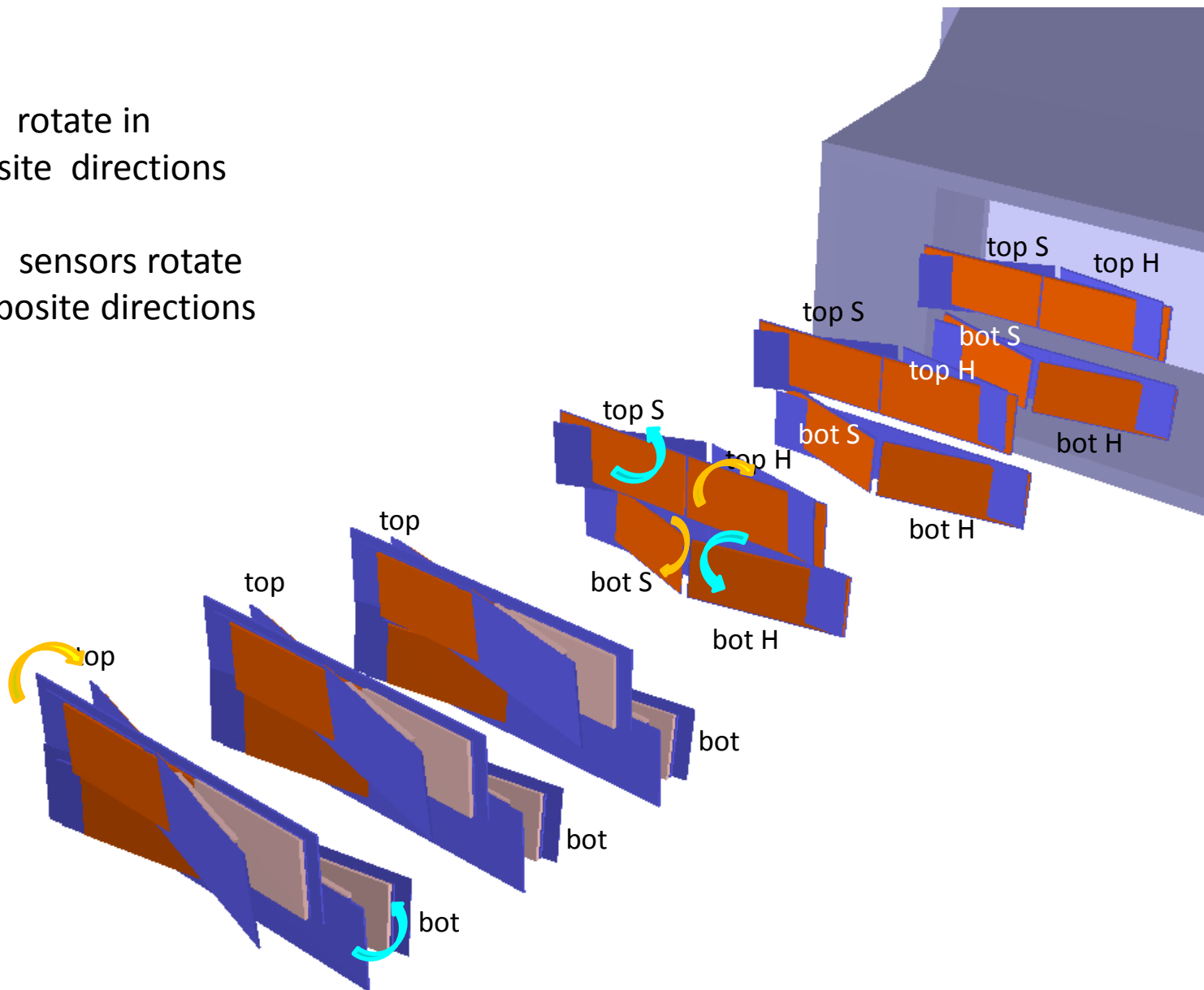
S & H sensors rotate in opposite directions



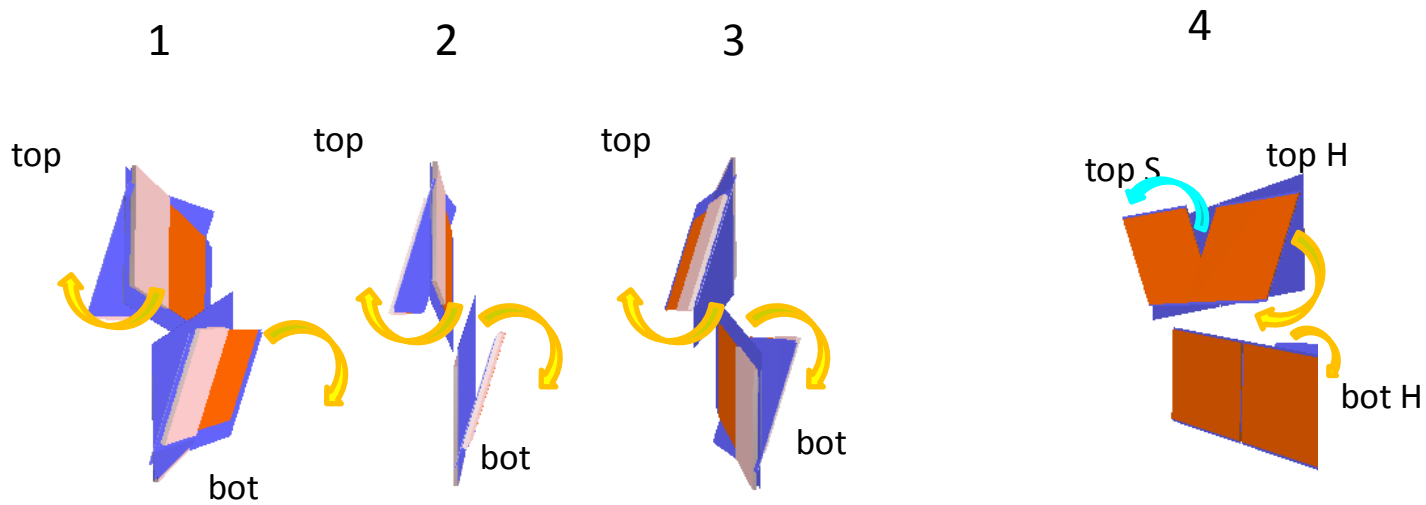
Big U +rotations, stereo sensors

T & B rotate in opposite directions

S & H sensors rotate in opposite directions



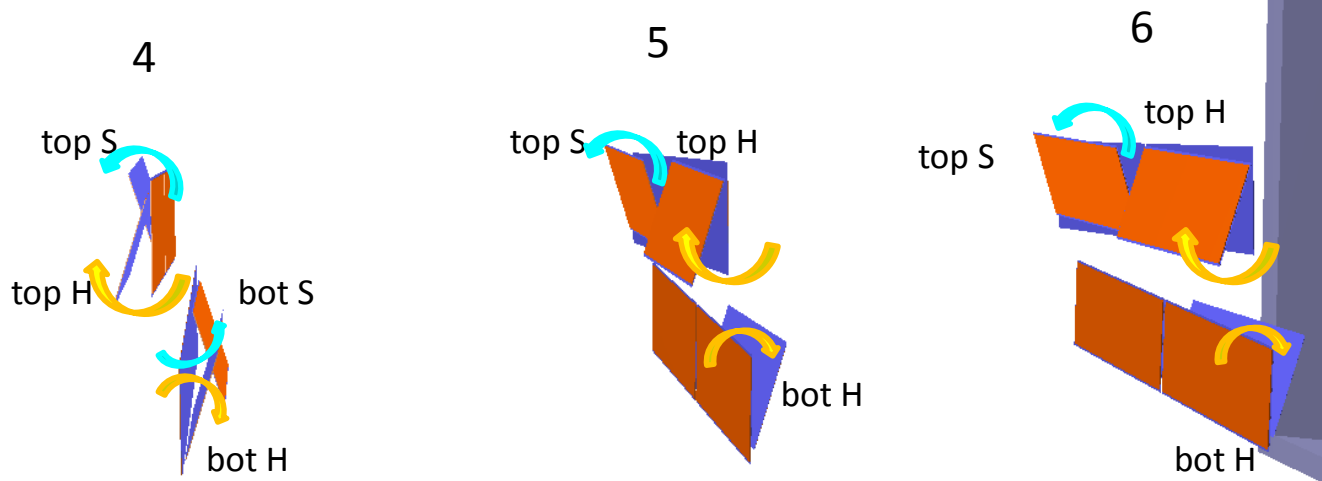
Big V + rotations, axial sensors



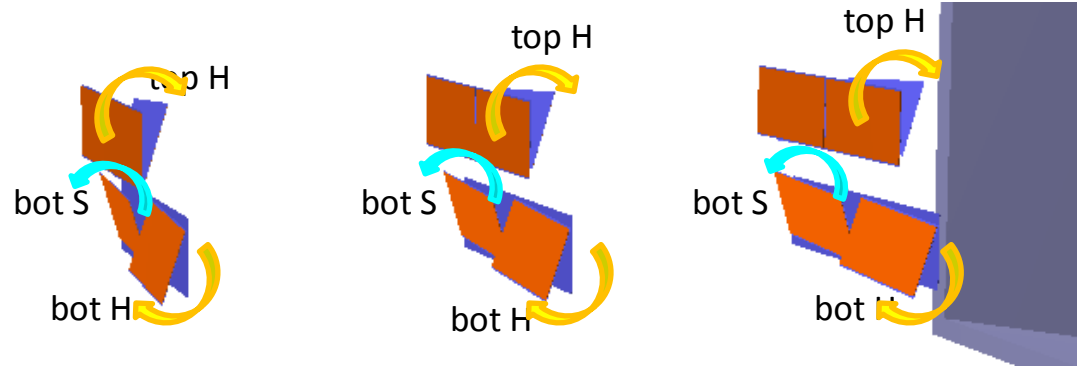
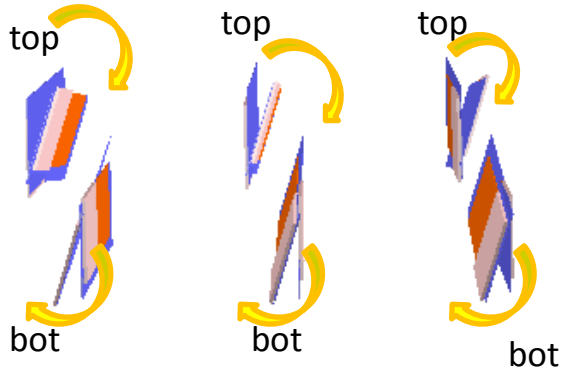
T & B rotate in the same direction

123 + hole rotate in the same direction

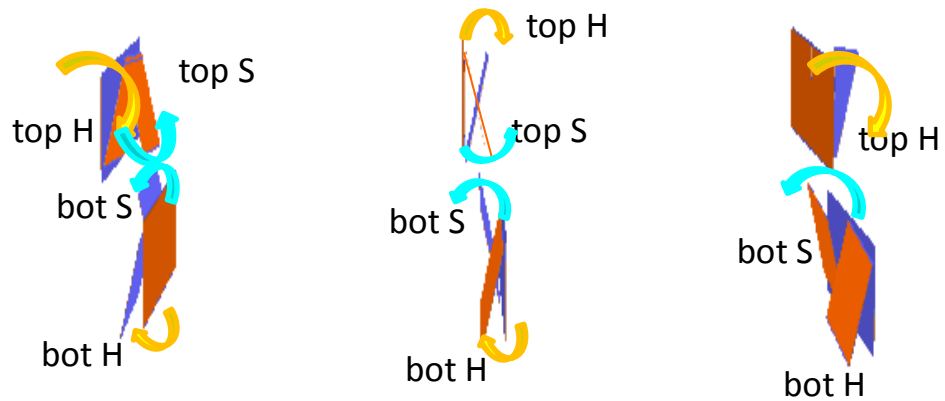
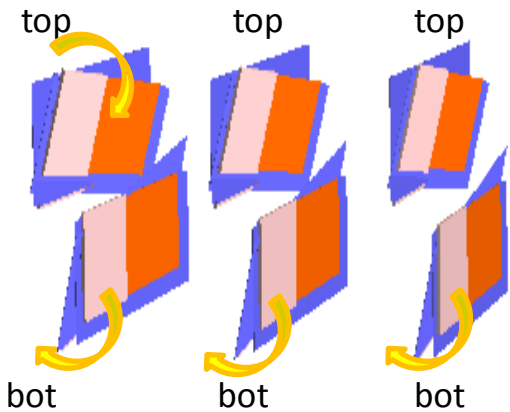
slot sensors rotate in opposite direction wrt to H



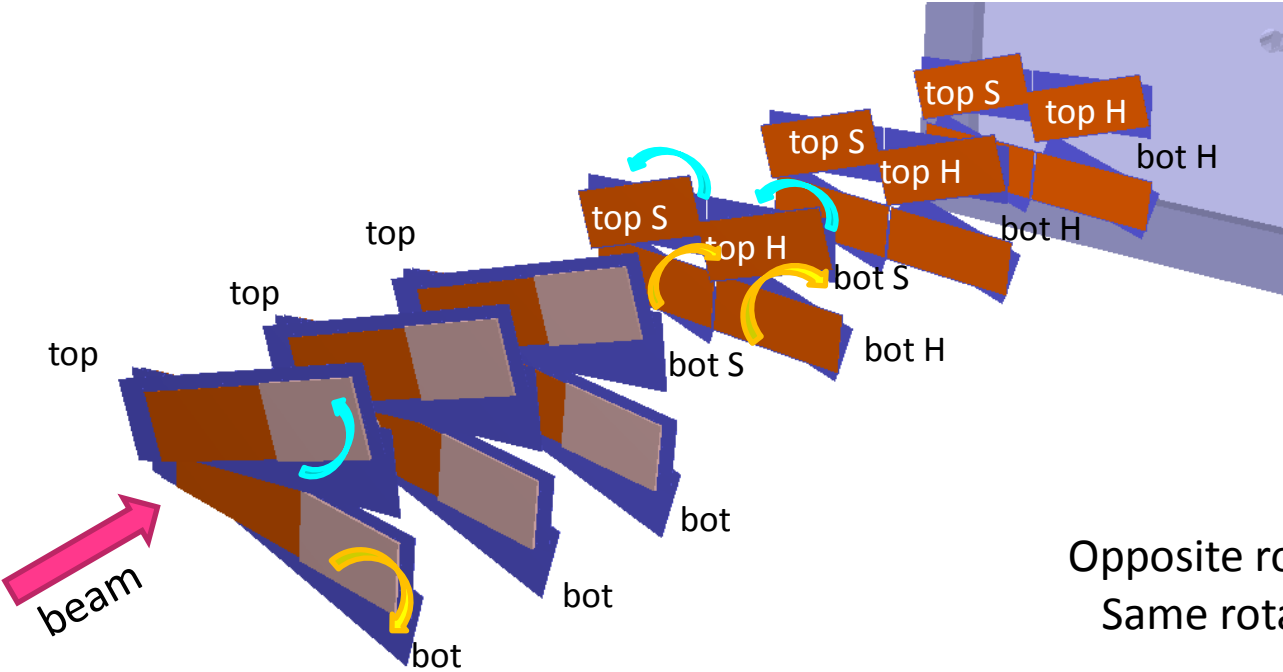
Big V + rotations, stereo sensors



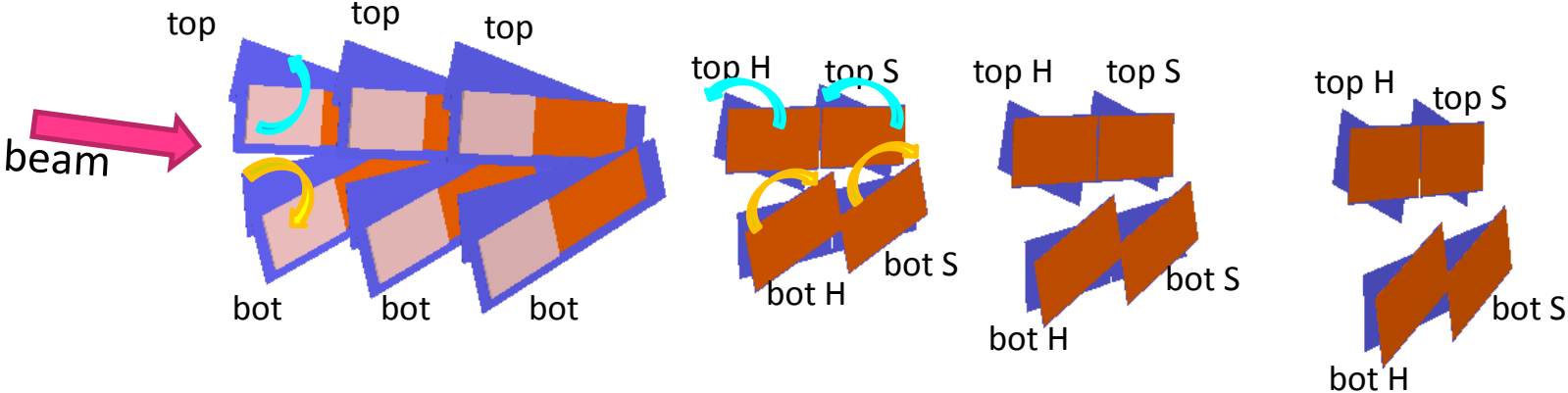
T & B rotate in the same direction
 123 + hole rotate in the same direction
 slot sensors rotate in opposite direction wrt H



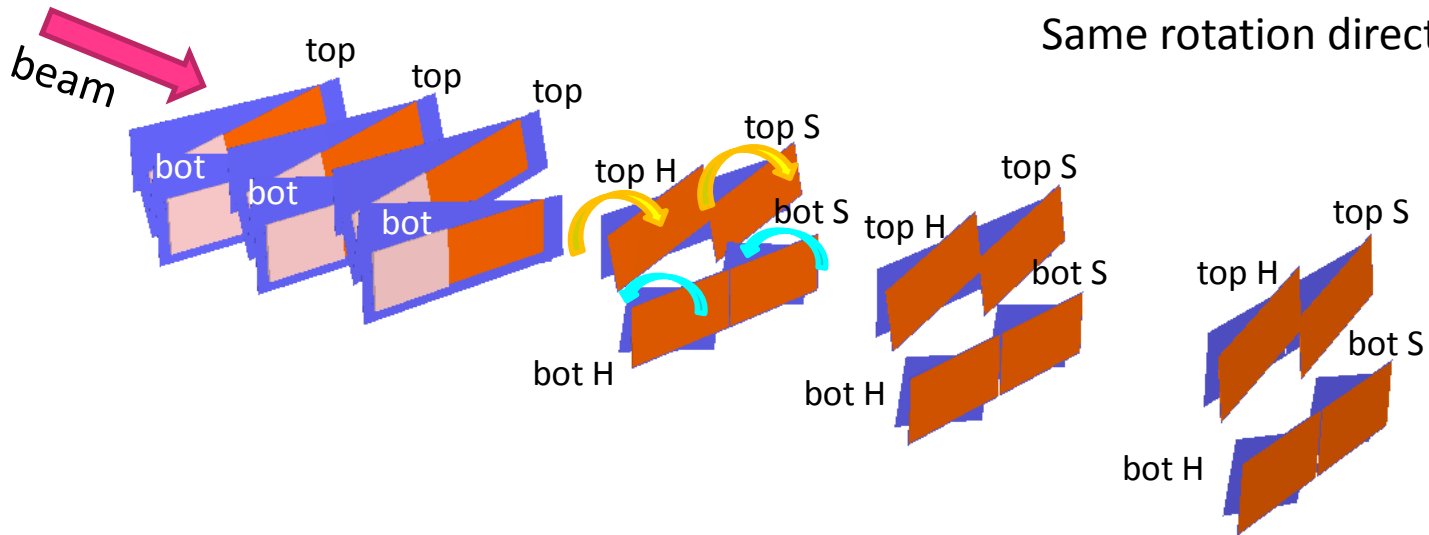
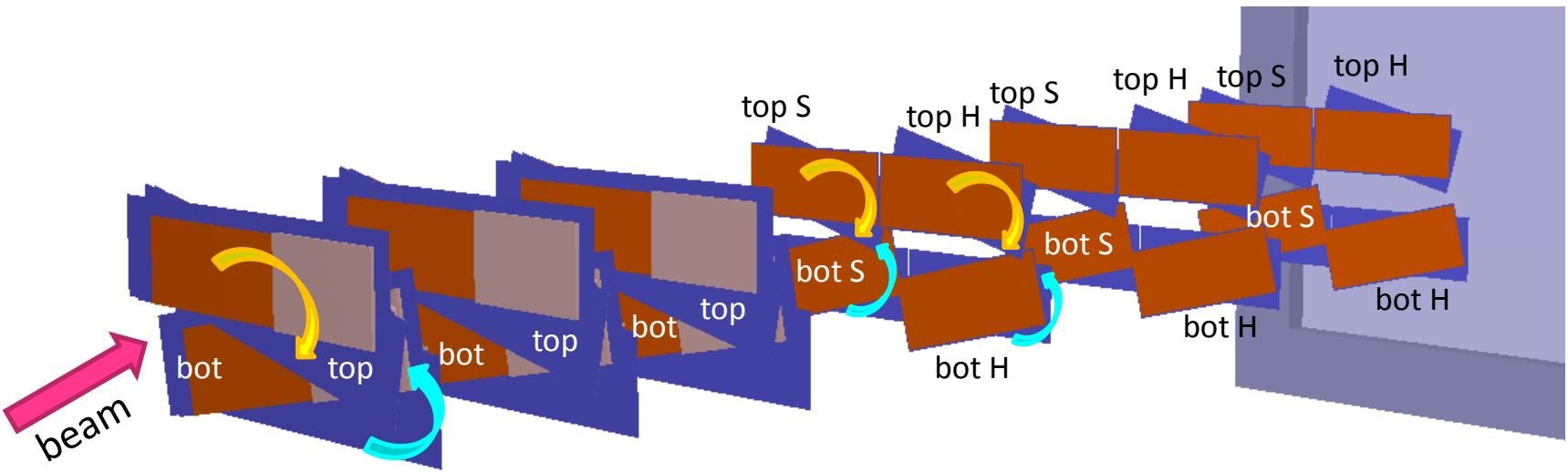
Big W +rotations, axial sensors



Opposite rotation direction T vs B
Same rotation direction S vs H



Big W + rotations, stereo sensors



Opposite rotation direction T vs B
Same rotation direction S vs H