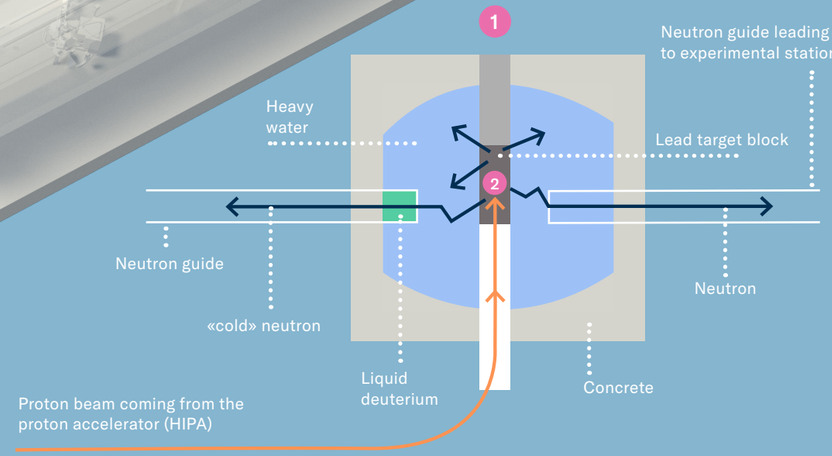
3D view: the Swiss Spallation Neutron Source SINQ

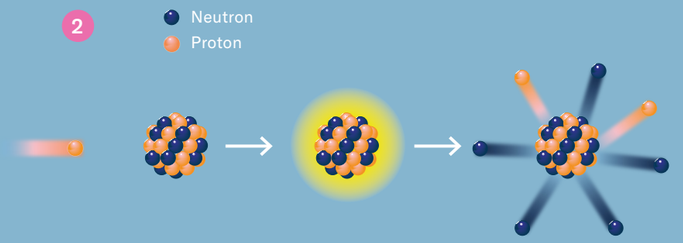
Where am I currently at PSI?

3 Neutron guide
Equipped with highly specialised mirrors built to reflect neutrons, these angular pipes guide the SINQ neutrons to the experimental stations.

10 m



2 When a proton collides with a lead nucleus, the nucleus heats up and in the process releases around ten neutrons. This is known as spallation.



1 In the target block
The SINQ produces neutrons when protons from the high intensity proton accelerator (HIPA, see p. 12 – 13) collide with a target block made of lead. Neutrons are then ejected at high speed in all directions. A cold source of liquid deuterium held in a 6,000 litre tank slows down or «moderates» the neutrons, which then pass into one of the neutron guides for use in specialised experiments. Neutrons that escape in other directions are blocked by protective layers and ultimately by the concrete cladding surrounding the target block. Some experiments operate with even slower «cold» neutrons. Their speed is further moderated in a 20-litre tank containing heavy water at round minus 250 centigrade.