

# Update on TWOCRIST: the feasibility of double-crystal fixed-target experiments at the LHC

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The Physics Beyond Colliders (PBC) study at CERN explores, among other topics, the potential of extending the Large Hadron Collider (LHC) physics program by Fixed-Target (FT) experiments. One option is to use two bent crystals (double-crystal setup): the first crystal deflects particles from the beam halo onto an in-vacuum target. Another crystal deflects short-lived particles created in the target, thus inducing spin precession. This setup has the potential to measure the electric and magnetic dipole moments of these particles, well beyond what can be done with magnets. The second crystal must induce a deflection of several mrad over a few cm. A proof-of-principle setup, TWOCRIST, is foreseen to be installed in the LHC and operated in 2025. It aims to validate the operational feasibility, assess the crystal properties at TeV energies, and gather data on achievable statistics. This contribution outlines the principle and objectives of the TWOCRIST project and the studies planned.

## Alternate track

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Yes

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