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## The latest design for a future short-baseline neutrino beamline

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The ENUBET and NuTAG projects propose the measurements of the  $\nu_e$  and the  $\nu_\mu$  cross sections at the relevant energies of Hyper-Kamiokande and DUNE. While ENUBET focuses on a fully instrumented decay tunnel to achieve a precise flux measurement, NuTAG proposes the use of silicon-pixel detectors to achieve the `\textit{full tagging}` of the parent meson and the daughter lepton. Both ideas have merged into the Physics Beyond Colliders (PBC) Short-Baseline Neutrino (SBN) beamline study, supported through the PBC initiative at CERN. If deployed at CERN, the SBN beamline would need to be compatible with the operation of the current injector complex including the new SHiP experiment, in particular with respect to the number of protons required. The beamline's intensity requirement must therefore be kept at a minimum. With that in mind, a full optimization of the beamline was conducted to maximize the production of hadrons while fulfilling pile-up and background constraints. This contribution presents the optimized beamline design, elaborating on the techniques used and challenges faced during the design process.

### Footnotes

### Paper preparation format

LaTeX

### Region represented

Europe

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