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SOLEIL II project: entrance in the construction phase

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SOLEIL II is the French upgrade project to build the science of tomorrow with synchrotron light radiation. Providing the highest brilliance in its class while maintaining the radiation range from IR to hard X-rays, the project is an ambitious triple upgrade of the SOLEIL facility: accelerators (new booster and storage ring), 29 beamlines and 3 laboratories, and an information technology transformation plan. High Order Achromat based on multi-bend achromat lattices will be used to replace both the storage (SR) and booster rings of the Synchrotron SOLEIL. The achieved equilibrium emittance of the SR (below 100 pm.rad, 354 m, 2.75 GeV) is about 50 times smaller than that of the existing Storage Ring (4000 pm.rad). To ensure the technical feasibility, an intensive R&D phase based on extensive numerical simulations, prototyping and measurements has been carried out. This paper presents the latest status of the project, the updated timeline, and describes the main results obtained so far in terms of performance and the prototypes launched in many technical domains (lattice, magnets, insertion device, vacuum, alignment⋯).

Footnotes

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