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Commissioning plans for the CSNS-II superconducting linac

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The power upgrade project of the China Spallation Neutron Source(CSNS-II) was officially launched in 2024. It will upgrade the accelerator complex five times its current beam power capability, from 100 kW to 500 kW. A key component of the project is the superconducting linac(SCL), designed to accelerate an H- beam of 43 mA peak current from 80 MeV to 300 MeV. The SCL is composed of two families of cavities: 324 MHz double-spoke cavities and 648MHz elliptical cavities. This article describes the commissioning strategy plans for the SCL, with a focus on techniques for establishing RF setpoints and implementing rapid fault recovery in the event of cavity or subsystem failures. Additionally, other critical requirements, such as beam matching and steering approaches are discussed as well.

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Footnotes

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