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ERL Operation of the Superconducting Darmstadt Electron Linear Accelerator S-DALINAC – a Facility Report*

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The superconducting Darmstadt linear accelerator S-DALINAC [1] is a thrice-recirculating accelerator for electrons at TU Darmstadt. Since its establishment in 1991, the S-DALINAC was mainly developed and operated by students. Besides the conventional acceleration scheme serving various nuclear-physics experiments, the accelerator can also be operated as an energy-recovery linac (ERL). Following the first operation as a once recirculating ERL [2], the S DALINAC achieved high-transmission multi-turn energy recovery in August 2021 [3]. Dedicated beam dynamics simulations, as well as beam diagnostic devices designed for ERL operation, are essential to operate an accelerator as an ERL. This contribution will give an overview of the facility with a focus on the ERL activities. Options for a successor ERL will be discussed.

[1] N. Pietralla, Nuclear Physics News, Vol. 28, No. 2, 4 (2018).
[2] M. Arnold et al., Phys. Rev. Accel. Beams 23, 020101 (2020).
[3] F. Schließmann, Contribution to this conference

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