

High power Beam dump for SARAF phase II

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Soreq Applied Research Accelerator Facility (SARAF) is based on a proton/deuteron RF superconducting linear accelerator. Phase I, has already been completed and allows acceleration of 1 mA CW, 4 MeV proton beams and low duty cycle acceleration of 5 MeV deuterons. Phase II of the project is under way and includes the development of the accelerator to its final specifications: energy of 40MeV proton/deuteron, and a current of up to 5mA. A beam dump will be required at the commissioning stage and for daily operations. The beam dump must be designed to stop a beam with a maximum power of 200 kW. To avoid radiation damage and improve heat transfer, a design concept of liquid metal target is suggested, based on our vast experience with the Lithium target at SARAF. The suggested liquid is a Ga-In-Sn metal alloy (Gallinstan) with a melting point of 100C, designed to dissipate beam powers of 200 kW. The setup is based on a high-velocity windowless Gallium-Indium jet

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