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Prospects of a THz/IR FEL at TRIUMF Laboratory

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The TRIUMF Laboratory, located in Vancouver, Canada, presently undergoes the final stage of construction of an Advanced Radioactive Isotope production facility that will substantially enlarge its Nuclear Physics program [1]. One of the key component of the facility is a 50MeV 10mA CW linear electron accelerator. The construction of the linac has been completed and it is now in the commissioning mode. The linac exploits superconducting technology and is capable of delivering up to 0.3MW of beam power. Only a fraction of this power can presently be handled by isotope production targets. Much of the available capacity can be used for other applications. From the very beginning the linac was also considered as a test bench for an IR FEL in the ERL configuration, but that option has never been funded. The parameters of the machine are particularly suited for a powerful source of THz radiation. Recently, the FEL proposal has received a new impulse. The design studies are about to start targeting both coherent spontaneous emission and FEL process in THz and Infrared regions.

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