Contribution ID: **1671** Contribution code: **TUPS127** Type: **Poster Presentation**

Compact CW 1-15 MeV 10-100 kW electron accelerators

Tuesday 3 June 2025 16:00 (2 hours)

Our understanding underscores a global demand for affordable, efficient, and compact/mobile electron beam solutions across various sectors, including:1.Replacement of Co60 sources: Co60 radiation sources must be replaced with safer and more efficient alternatives. 2.Isotope production and medical accelerator treatment: Accelerators utilized in isotope production and medical treatments necessitate reliable and cost-effective solutions.3.Medical sterilization via electron beams: Utilizing electron beams for medical sterilization purposes, ensuring safety and efficacy in healthcare settings. 4. Employing electron beams for food processing applications, enhancing food safety and preservation. 5/Electron beam for water processing: Electron beams are utilized for water treatment and purification, addressing water quality concerns.
The proposed solution employs a 1497 MHz frequency, enabling compactness and efficiency. The accelerator design utilizes a single linac and racetrack configuration, ensuring gradual acceleration while minimizing footprint. Future directions include integrating NB3Si-based superconducting cavities with cryocoolers for higher beam energies and scalability.

Footnotes

Paper preparation format

Word

Region represented

Asia

Funding Agency

Author: POPOVIC, Milorad (Muons, Inc)

Co-authors: NEUBAUER, Michael (Muons, Inc); JOHNSON, Rolland (MuPlus, Inc.); KAHN, Stephen (Muons, Inc); DUDNIKOV, Vadim (Muons, Inc)

Presenter: POPOVIC, Milorad (Muons, Inc)

Session Classification: Tuesday Poster Session

Track Classification: MC3: Novel Particle Sources and Acceleration Techniques: MC3.T02 Electron Sources