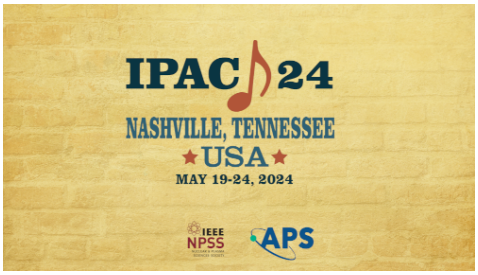

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Development of a compact electron cyclotron resonance accelerator for industrial and security applications

Thursday, 23 May 2024 16:00 (2 hours)

We describe the development of a novel accelerator, an electron Cyclotron Resonance Accelerator (eCRA) [1], to produce high power electron beams and X-ray beams for medical, research, sterilization, and national security applications. The several attractive features of eCRA include: a compact robust room-temperature single-cell RF cavity as the accelerating structure; continuous ampere-level high current output; and production of a self-rastering electron beam, thus eliminating the need for a separate beam scanner. Progress on the eCRA development, including numerical simulation, engineering design, and on-going experimental efforts will be reported here.

Footnotes

[1] Shchelkunov, S. V. and Chang, X. and Hirshfield, J. L., 2022, Compact cyclotron resonance high-power accelerator for electrons, Phys. Rev. Accel. Beams, 25, 021301.

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Primary author: PALMER, Mark (Brookhaven National Laboratory)

Co-authors: SIMMONDS, Andrew (Brookhaven National Laboratory); HIRSHFIELD, Jay (Omega-P, Inc.); ROY, Kelly (Brookhaven National Laboratory); FEDURIN, Mikhail (Brookhaven National Laboratory); ILARDI, Thomas (Brookhaven National Laboratory); YAKOVLEV, Vyacheslav (Fermi National Accelerator Laboratory); CHANG, Xiangyun (Yale University); JIANG, Yong (Particle Accelerator Research Foundation)

Presenter: PALMER, Mark (Brookhaven National Laboratory)

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