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New Electron Source for Energy Recovery Linacs

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Cornell University has built a photoemission electron source for a new class of particle accelerators based on Energy Recovery Linacs. Recent advances in beam production and quality now make this photoemission source the world's brightest high current source of relativistic electrons opening new scientific opportunities with high-power high-density beams. This talk will motivate the need for brighter beams and will review scientific and technological progress that has allowed Cornell photoinjector to achieve the unprecedented beam brightness.