

# The First Beam of an Ultrahigh Gradient RF Photogun

*Thursday, 17 February 2022 12:00 (25 minutes)*

High brightness electron beams are appealing for light sources, electron microscopy, and high energy collider, etc. An Ultra-high gradient on cathode is one of the most desirable parameters that improve the beam brightness. However, the maximum gradient is limited by the effects of RF breakdown in general. We present development of an X-band electron photoinjector operating in a very short RF pulse regime, 10 ns scale, which has demonstrated a stable beam emission at greater than 300MV/m of gradient on cathode.

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**Session Classification:** Guns