Coherent Light Source R&D at MIT

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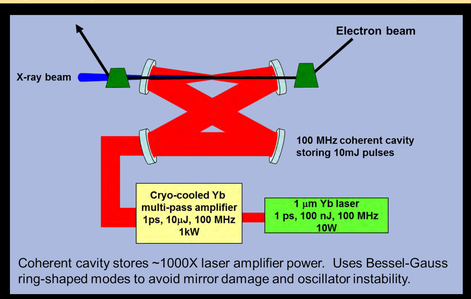
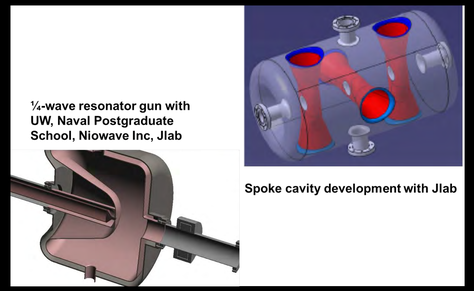
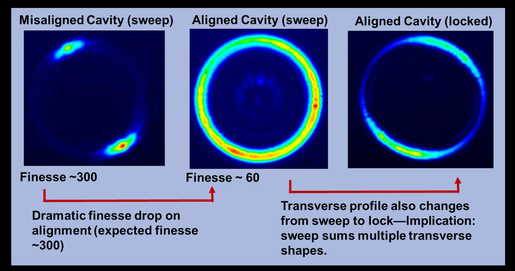
Cryo lasers for seeding, ICS, and HHG sources Optical synchronization with femtosecond jitter

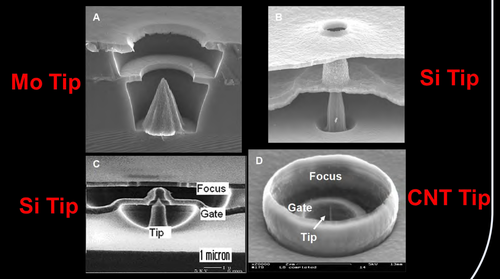


Coherent cavity stores ~1000X laser amplifier power. Uses Bessel-Gauss ring-shaped modes to avoid mirror damage and oscillator instability.

Innovative CW SRF cavities optimized for low heat load and high efficiency



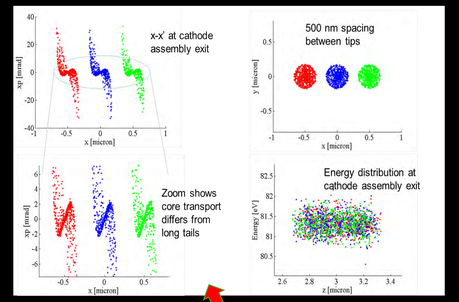


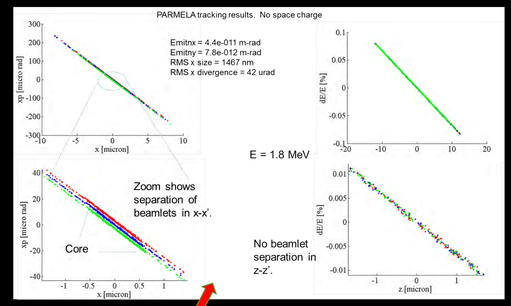


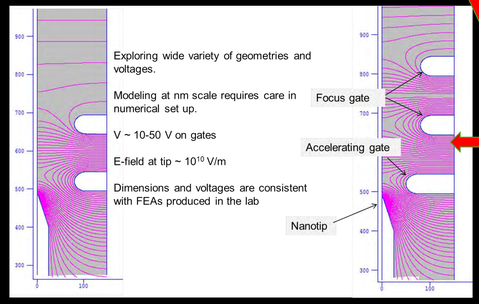
Laser coherent enhancement cavity for ICS, seeded FELs, high power HHG

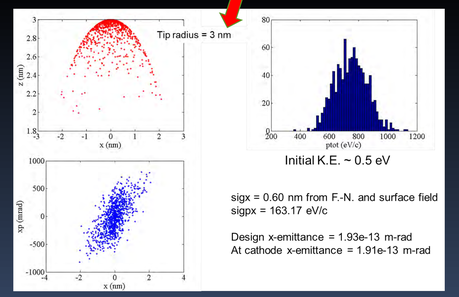
Nanocathode development for high brightness electron beams

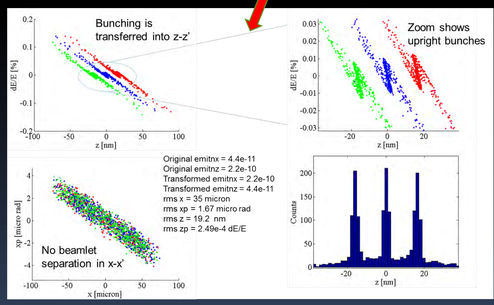
Concept for a coherent ICS x-ray source using nanocathodes and emittance exchange



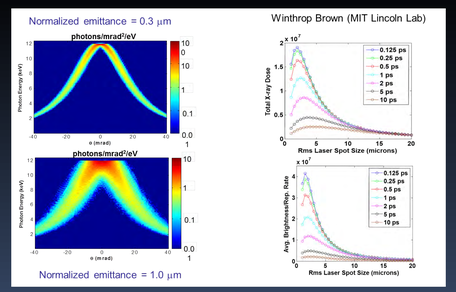








Optimization of ICS performance through time-dependent three dimensional tracking studies. Similar studies for seeded FEL performance.



ICS concepts including multiple independently tunable beamlines and high power ERL