# *Pushing the Limits of RF Superconductivity Workshop*

## Abstract Submission Form for Contributed Talks

**Name**: Charles E. Reece

**Affiliation**: Jefferson Lab

**Session:** (choose one)

__x_ Ultimate Field Limits, New Materials, New Geometries

___ High Q, Field Emission, Q-Slopes

___ Future Research Paths to Ultimate Performance

**ABSTRACT:**

**Title**: Fabrication and Performance of Improved Cavity Shapes for 12 GeV CEBAF

The next prototype cryomodule for the CEBAF 12 GeV Upgrade, *Renascence*, will include a mixture of two new cavity shapes optimized for improved shunt impedance. The design of these cavities has been previously reported. A batch of twelve 7-cell cavities has been fabricated at JLab. For CW operation, a principal constraint is the 2 K dynamic load. The heat load budget for the 12 GeV project allocates 44 W at 2.09 K per active meter, or 31 W/cavity. We have demonstrated that this is achievable to 22 MV/m with the "LL" shape. This is limited by FE-free high-field Q-drop. With Q improvement from EP, this geometry potentially may attain 25 MV/m CW with the same heat load. The characteristics and vertical test performance of these "LL" and "HG" cavities will be reported.