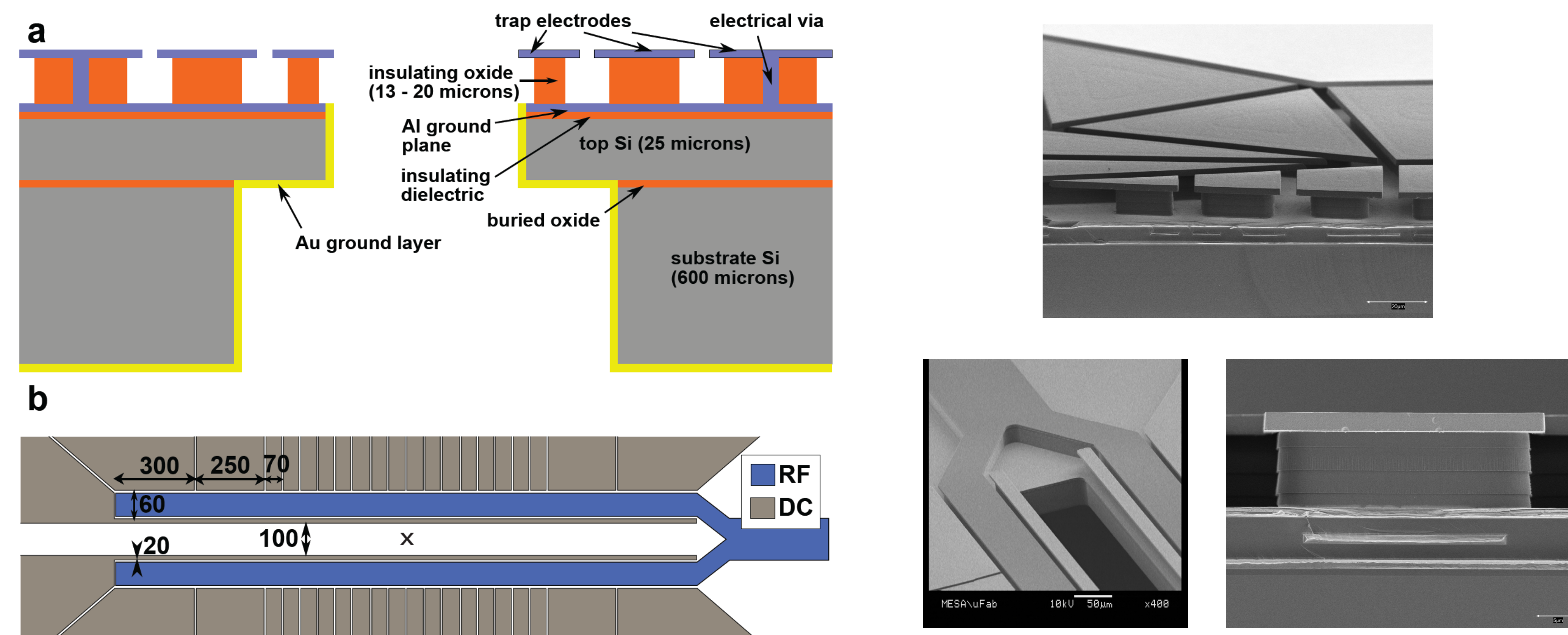


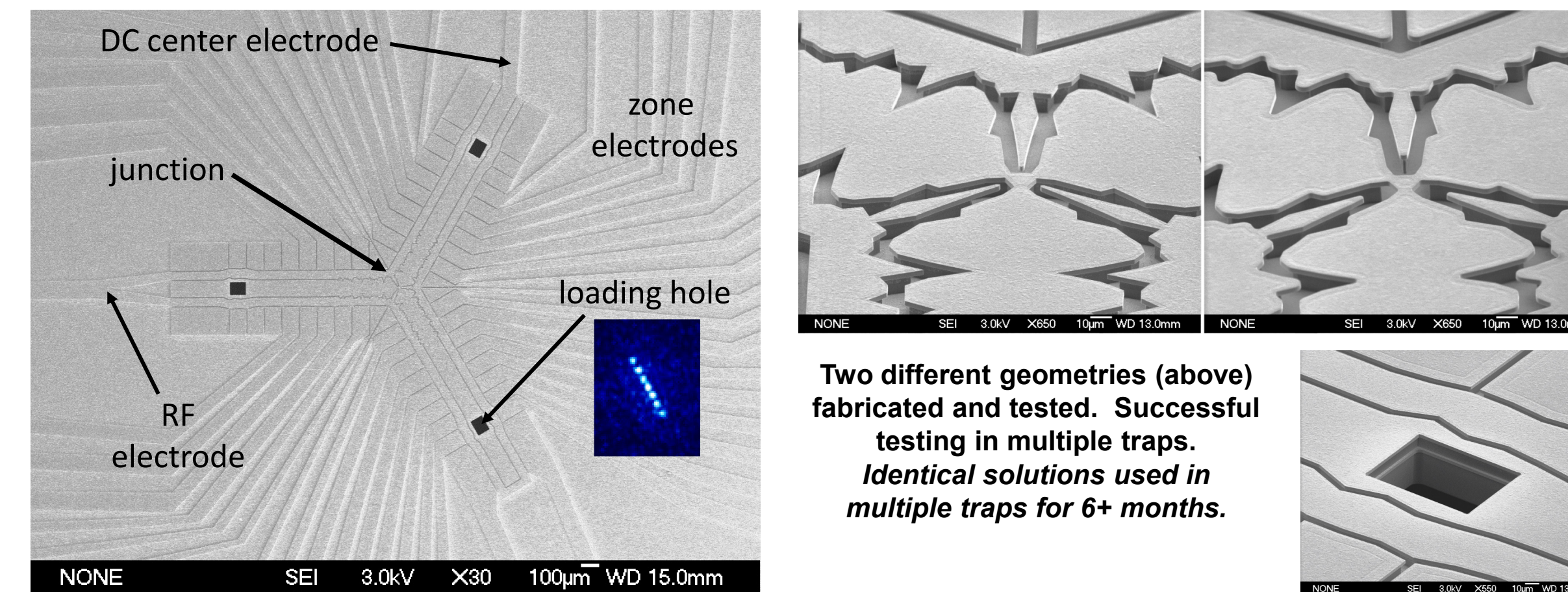
Surface Electrode Ion Microtrap Fabrication



D. Stick, et al. Demonstration of a Microfabricated Surface Electrode Ion Trap, [arXiv:1008.0990v1] (2010).

Junction Surface Ion Traps: Design, Fabrication, and Testing

Original Y-Trap Junction Design

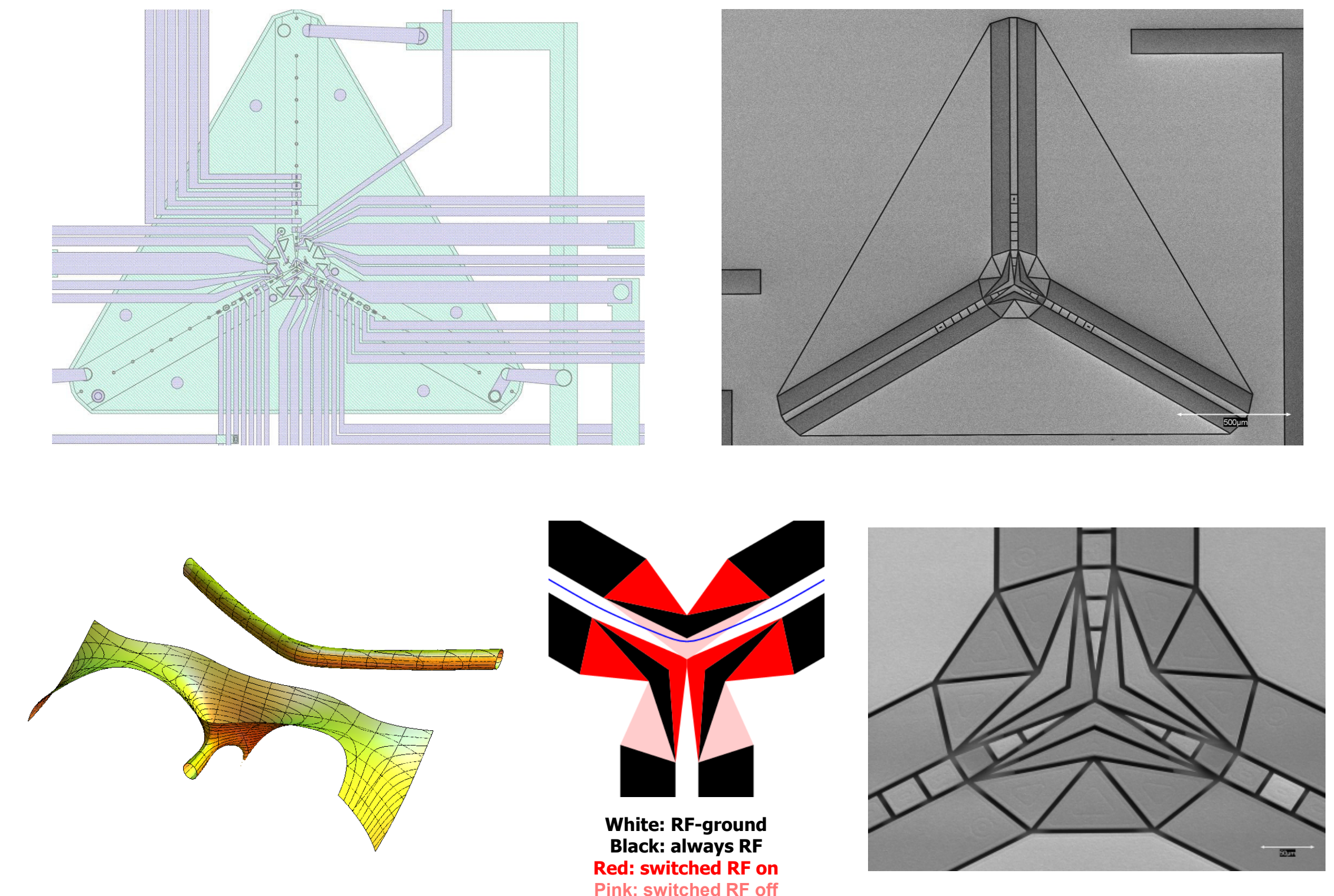


Left: reflection ion-height measurement.
Right: Junction shuttling image.
10⁶ junction shuttles without ion loss.
Total travel of 1.5 km at 1 meter/second.

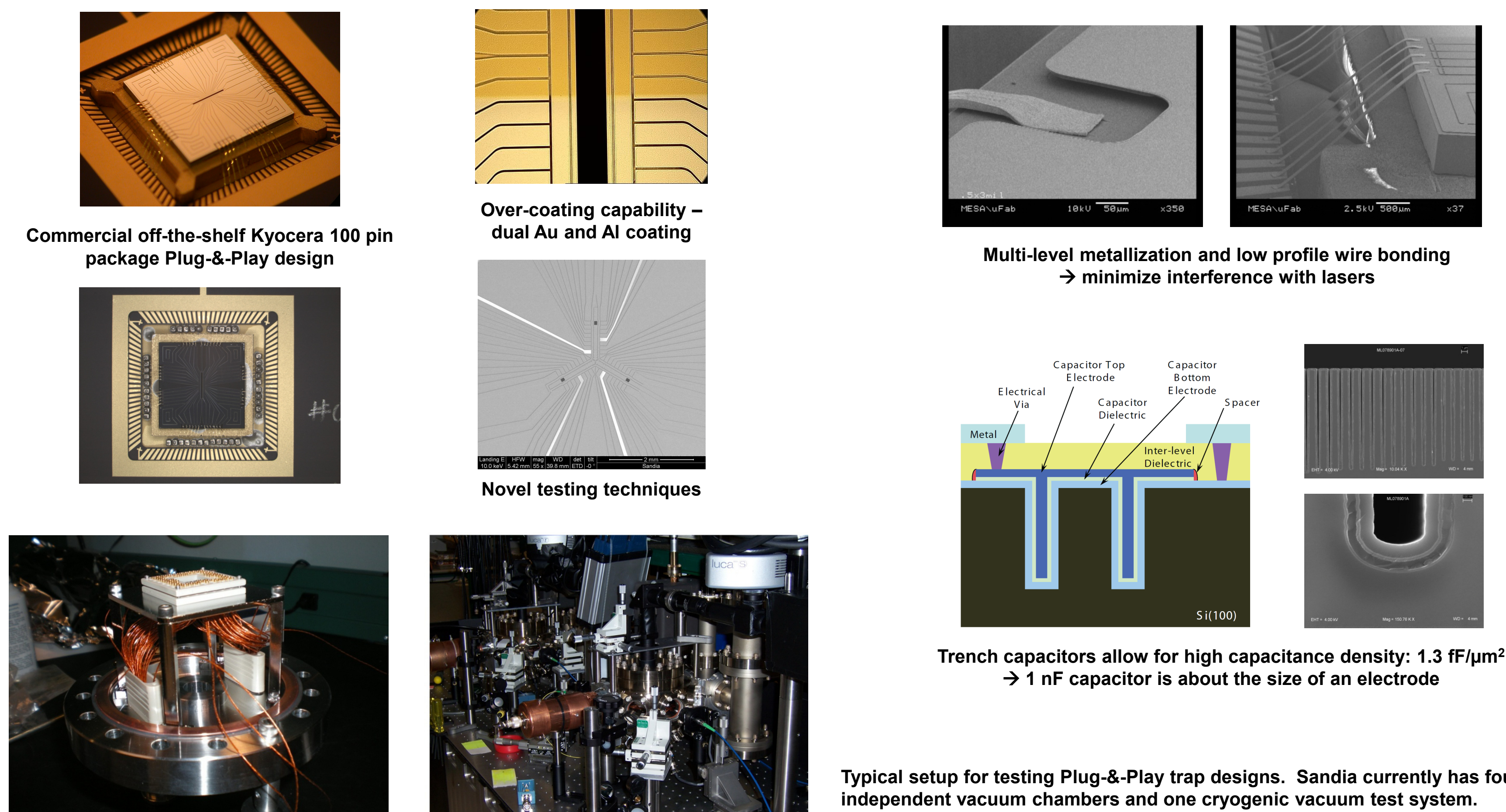
Successful Junction shuttling also at Georgia Tech campus group of Ken Brown.
Successful junction shuttling was performed with identical voltage solution used also at Sandia.

Y-Junction with RF Switchable Electrodes

In collaboration with NIST Boulder, we have fabricated and delivered a Y-Junction trap with electrodes that can be either RF or DC depending on the desired trajectory.

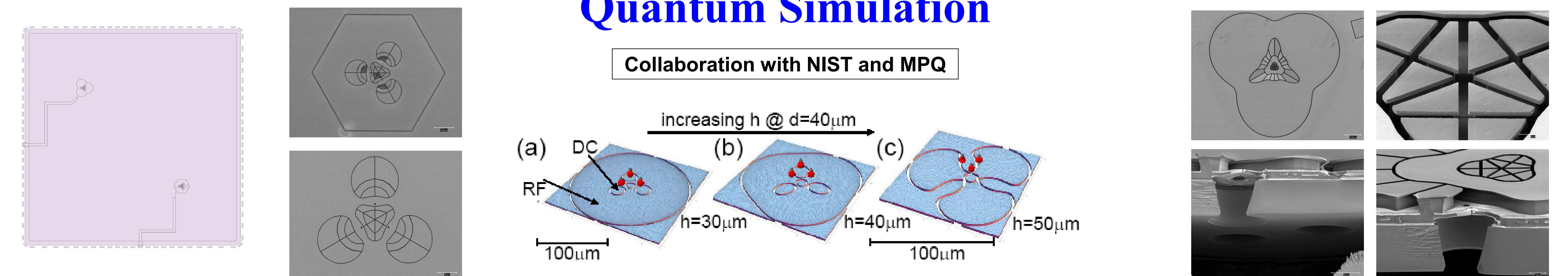


Ion Trap Packaging & Integrated Capacitors

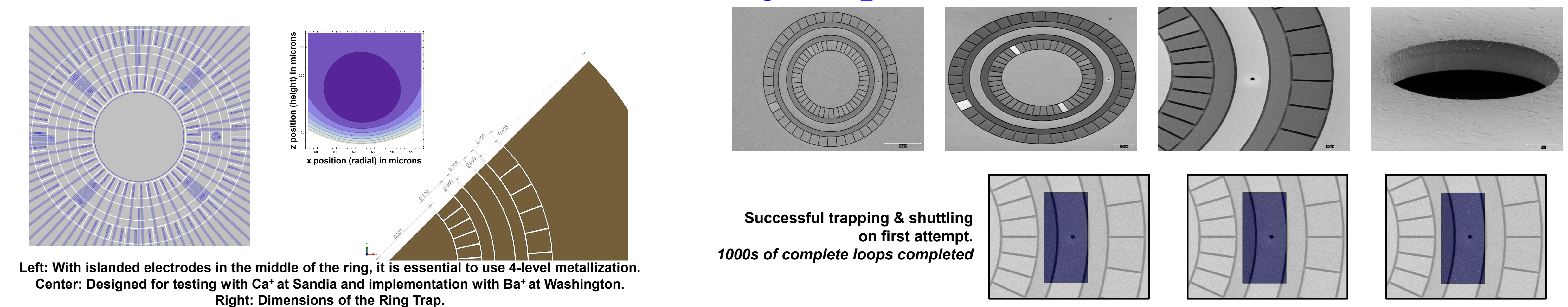


Quantum Simulation

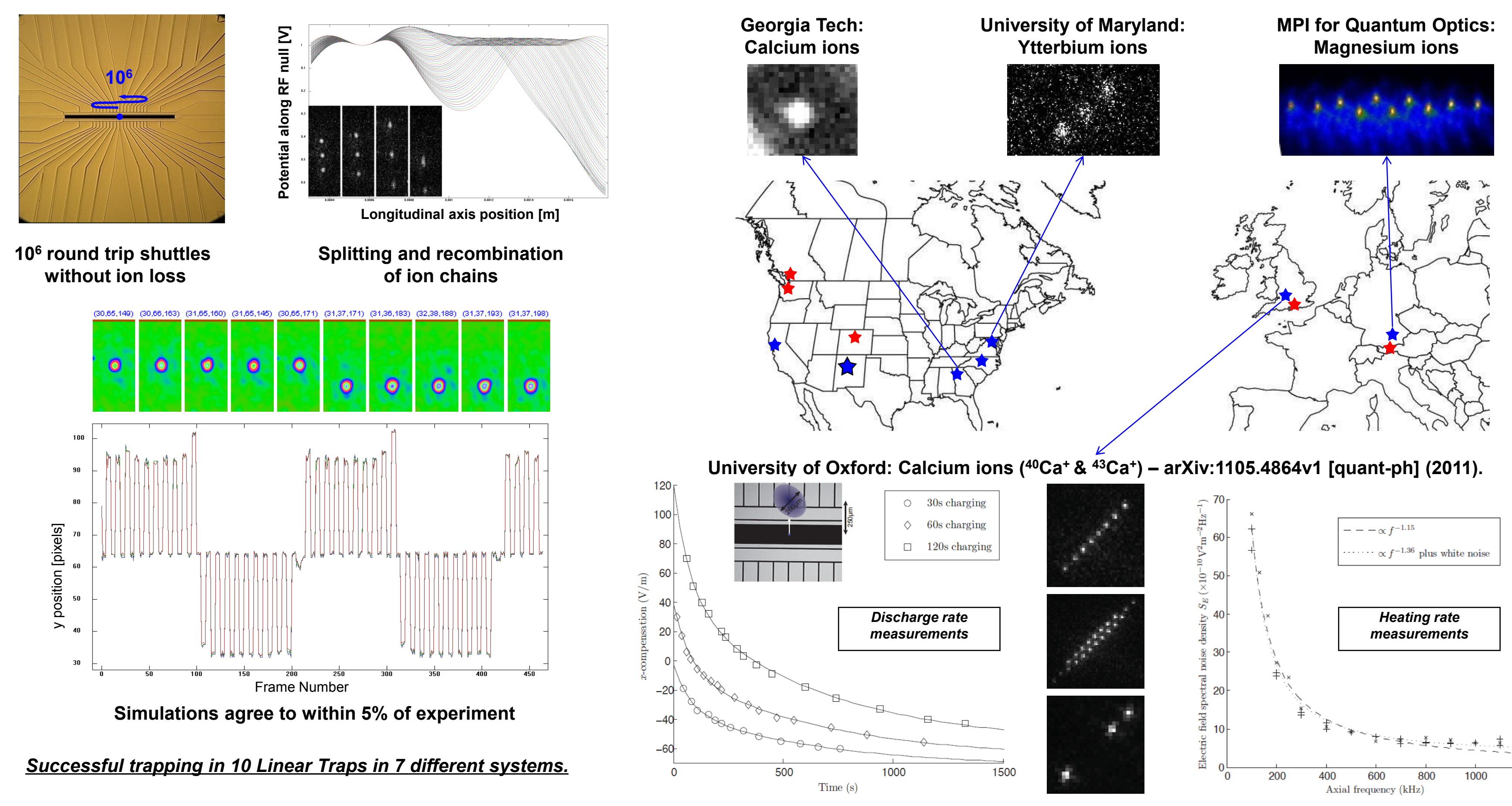
Collaboration with NIST and MPQ



Ring Trap

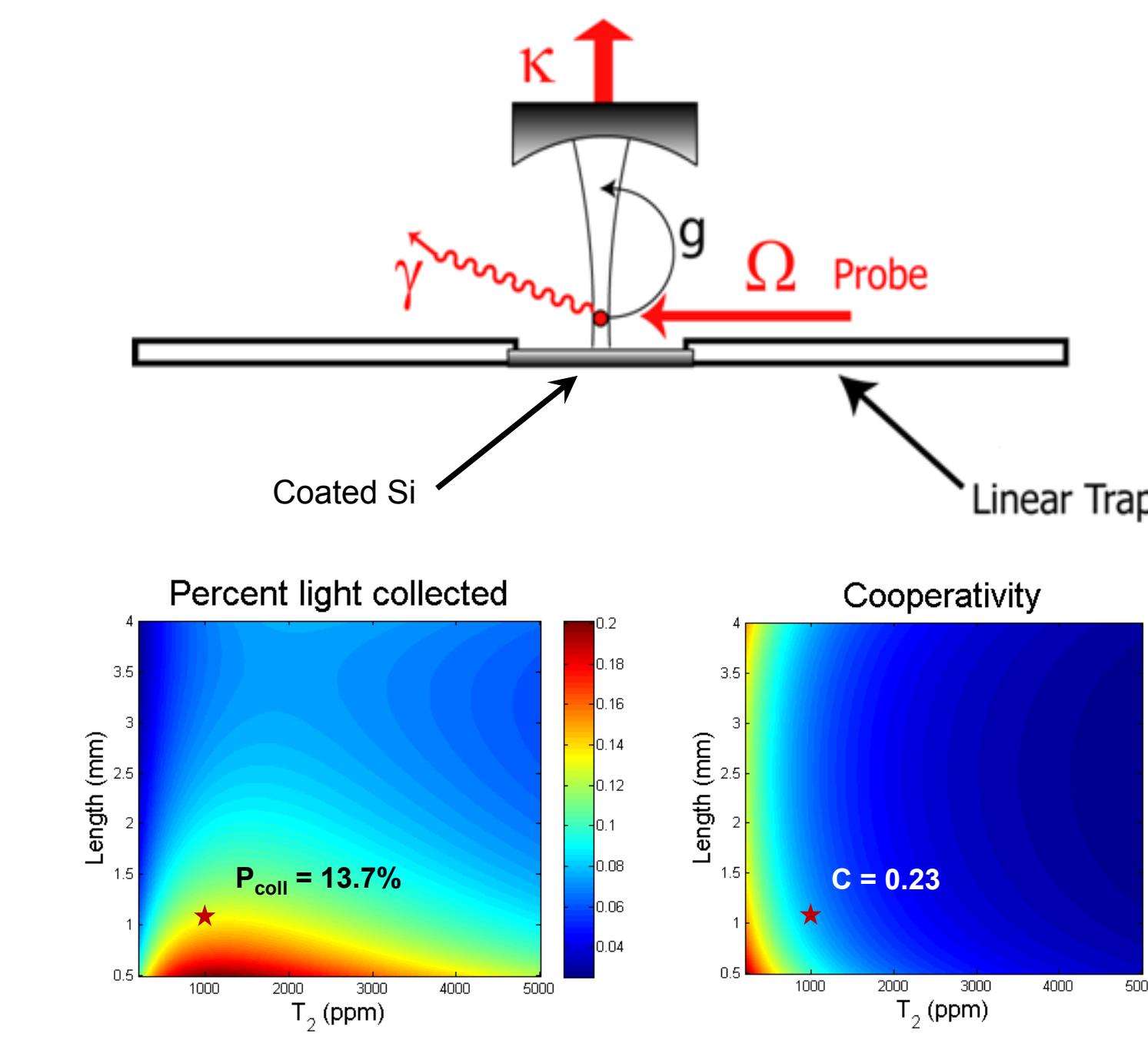


Linear Trap Results and Collaborations

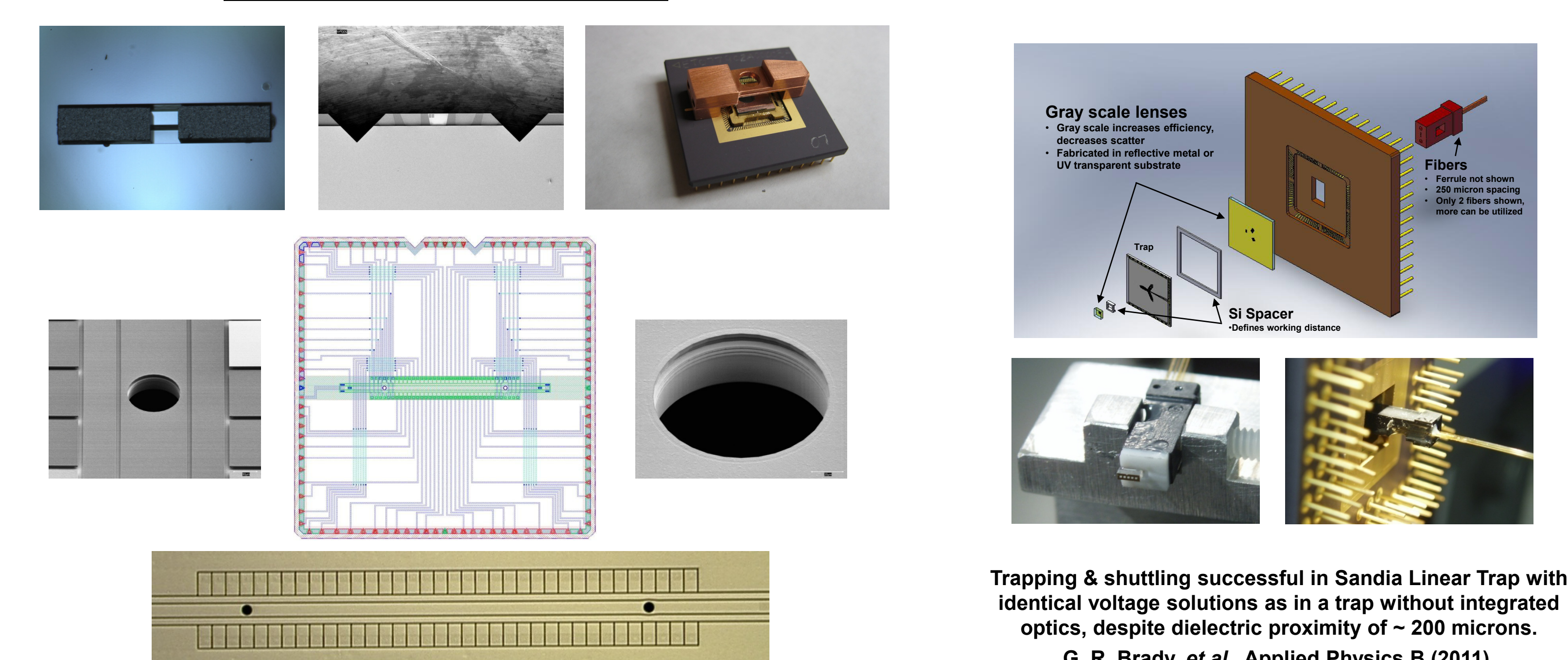


Cavity QED and Integrated Optics

Cavity QED-Integrated Microfabricated Surface Ion Trap



New Linear Trap Design and Fabrication



Trapping & shuttling successful in Sandia Linear Trap with identical voltage solutions as in a trap without integrated optics, despite dielectric proximity of ~200 microns.
G. R. Brady, et al., Applied Physics B (2011).