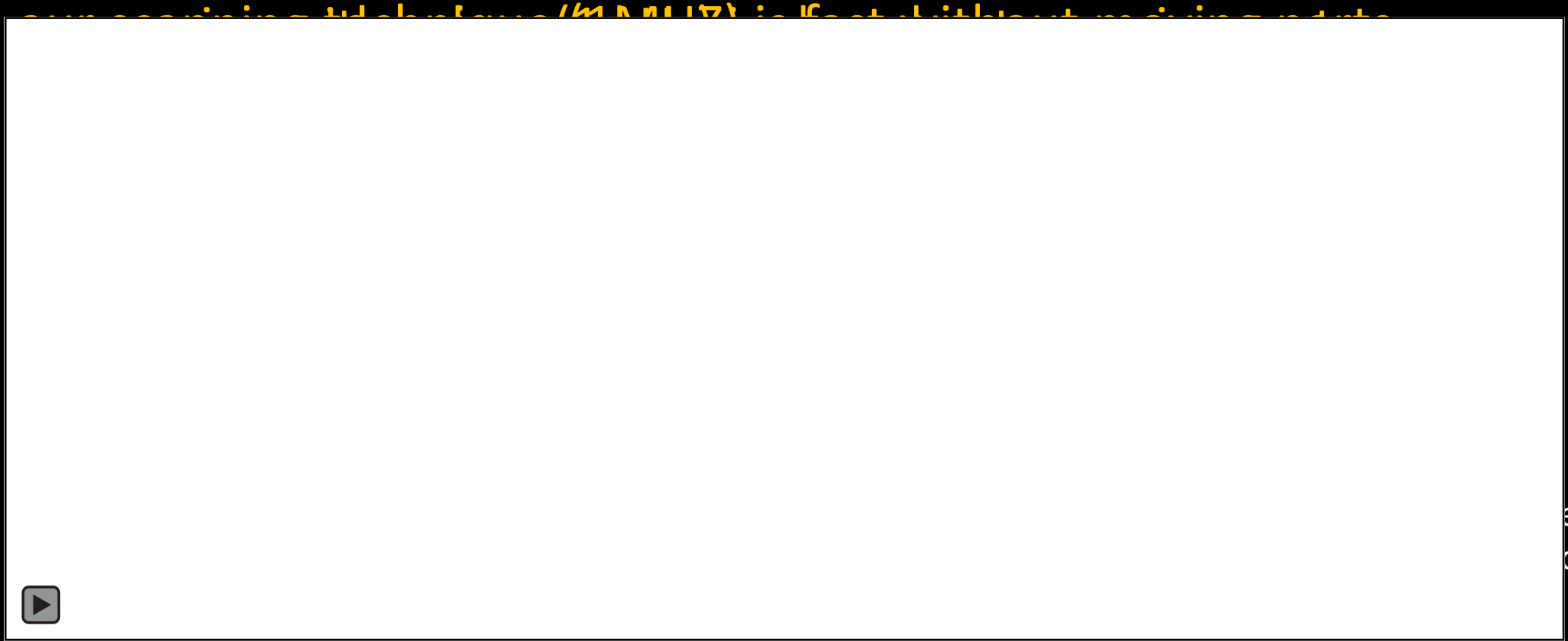


Megahertz scanning without moving parts

Adithya Pediredla, Srinivasa Narasimhan,
Maysam Chamanzar, Ioannis Gkioulekas



er
scale

projector



microscopy



lidar



Physics sound, light, and matter interaction

nm scale



2D visualization



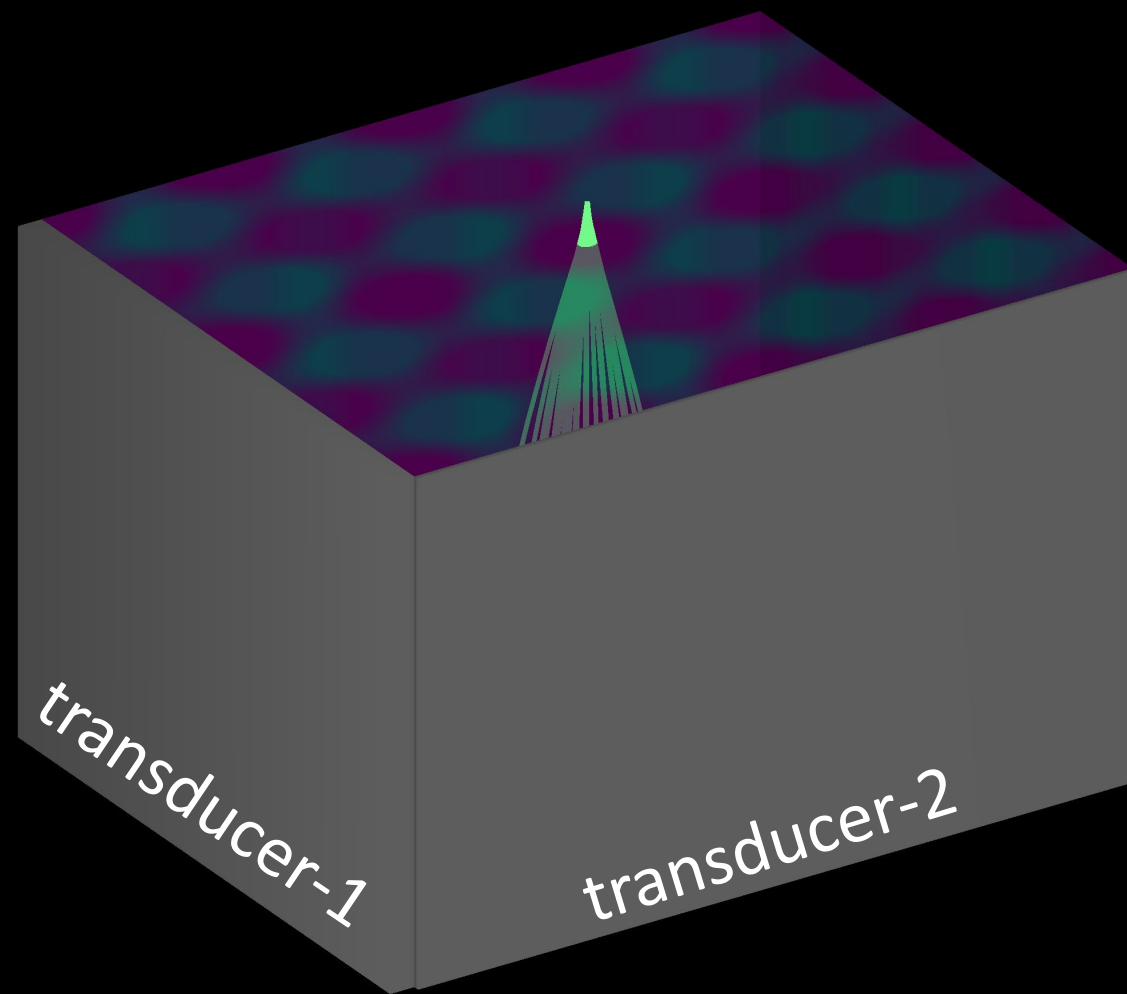
2D visualization







Dot projector

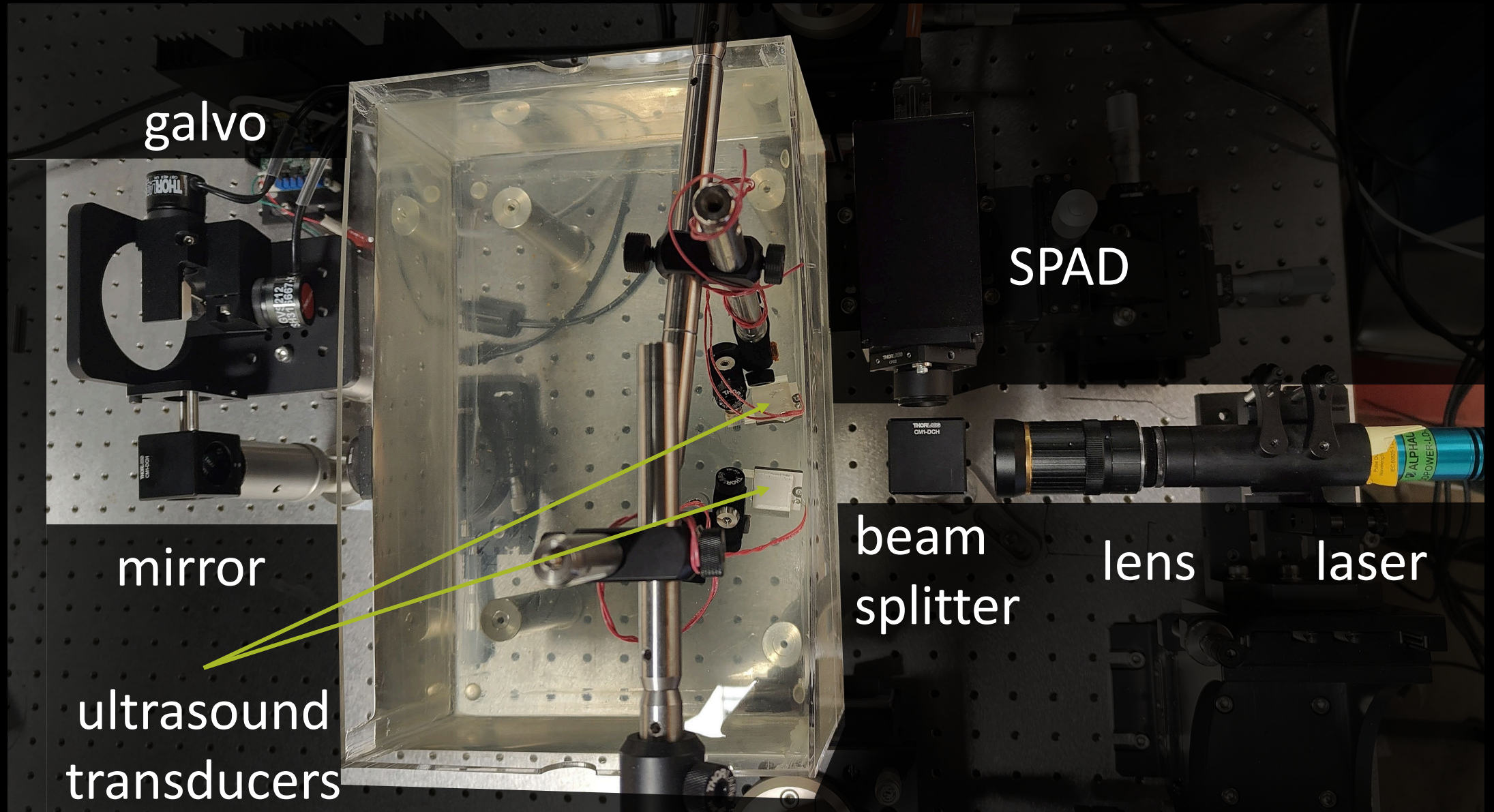




-2

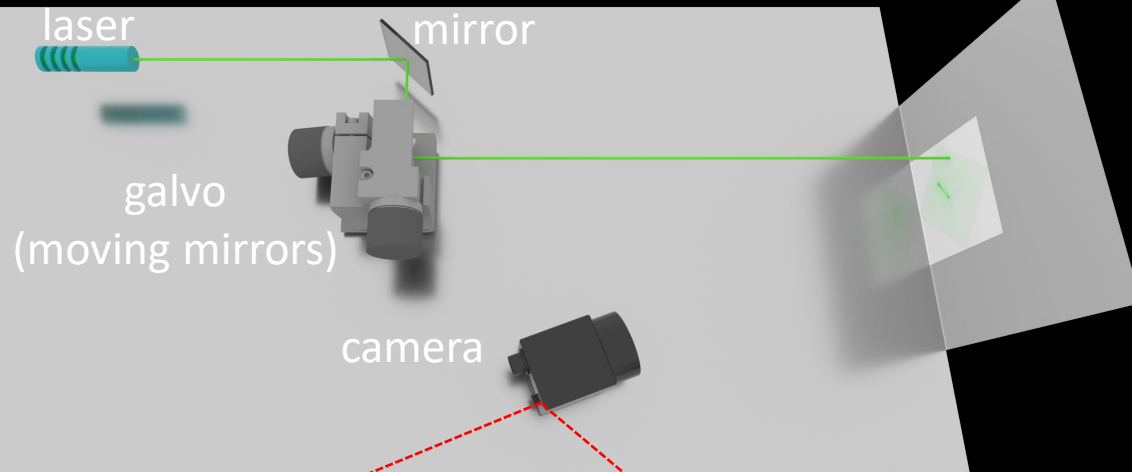


Hardware experiments

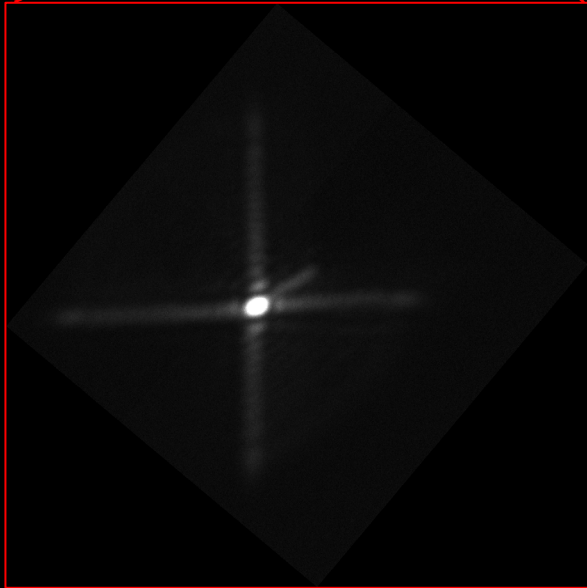


Dot projector

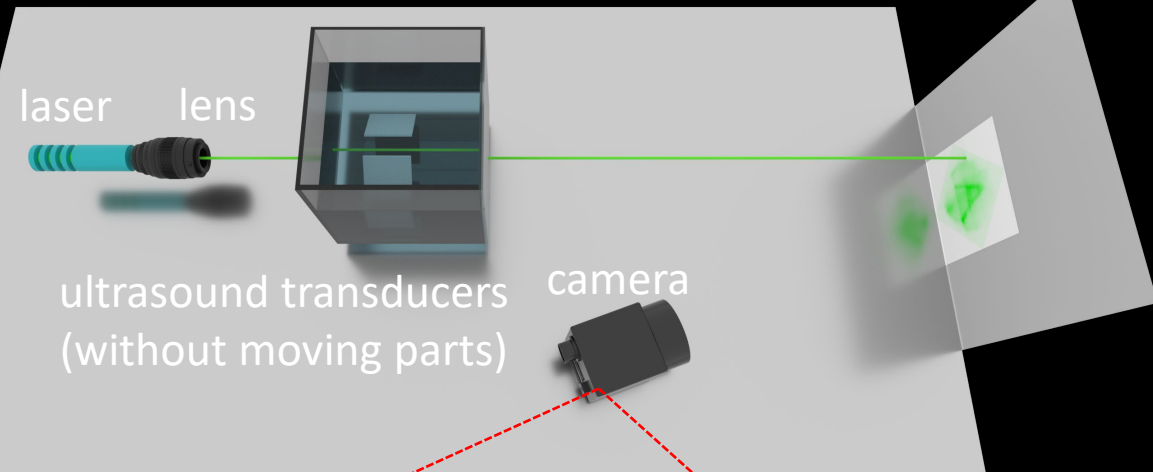
galvo steering (1 kHz)



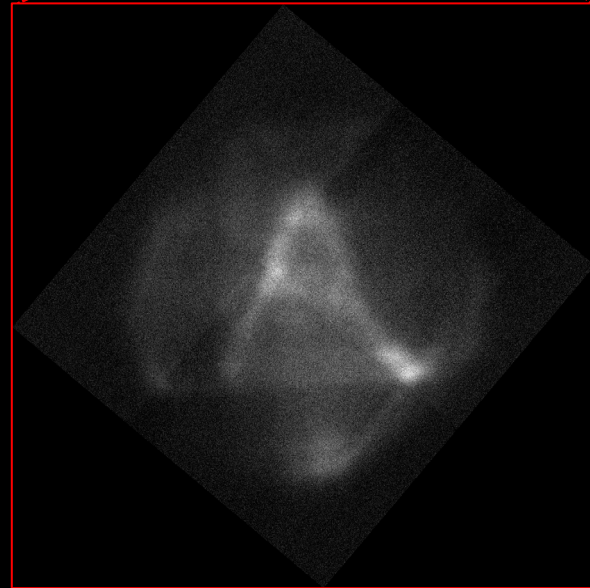
exposure= 1 ms



proposed steering (1 MHz)

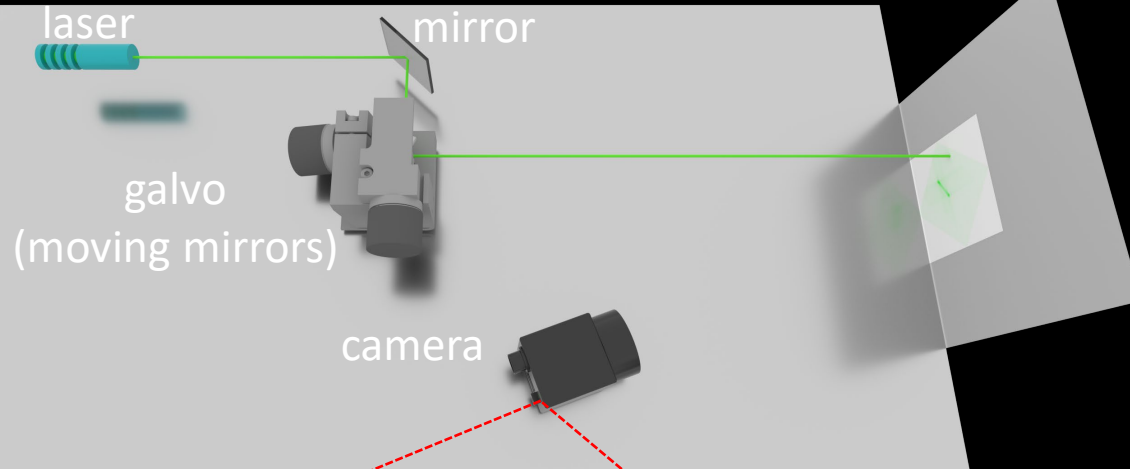


exposure= 1 ms

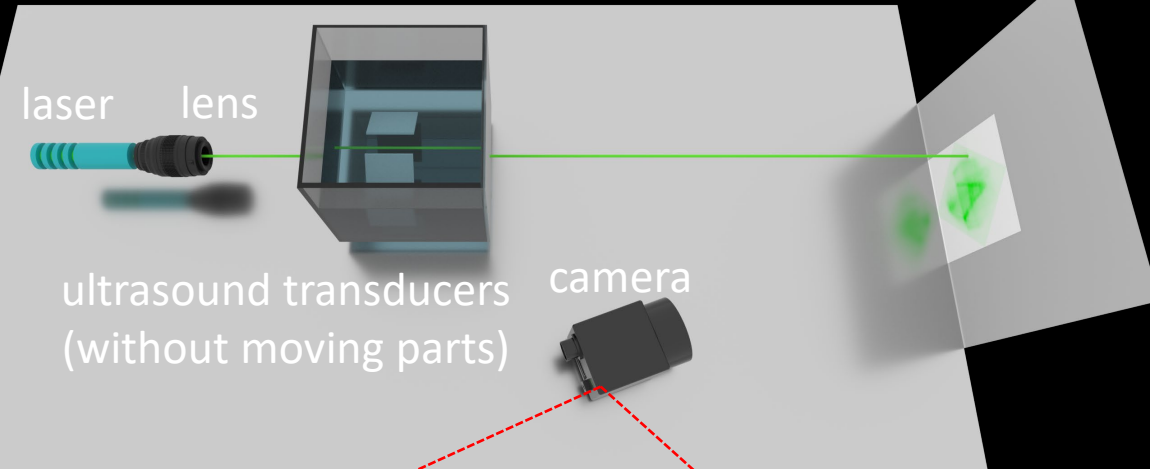


Dot projector

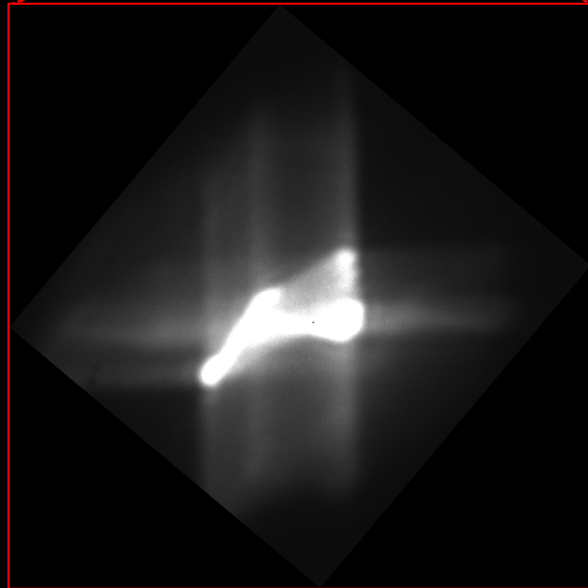
galvo steering (1 kHz)



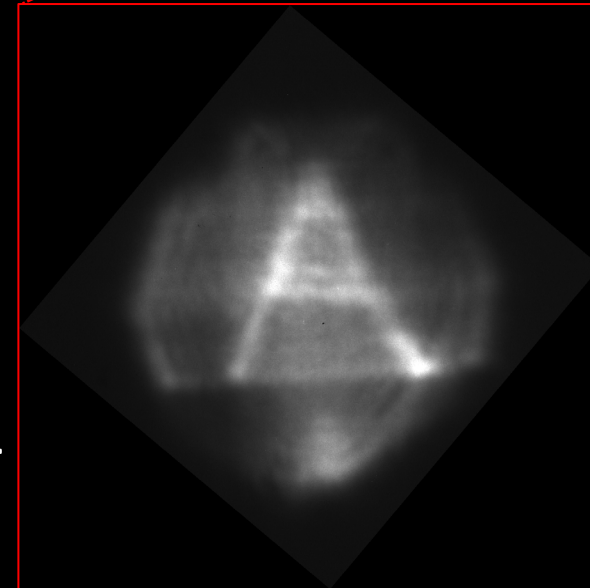
proposed steering (1 MHz)



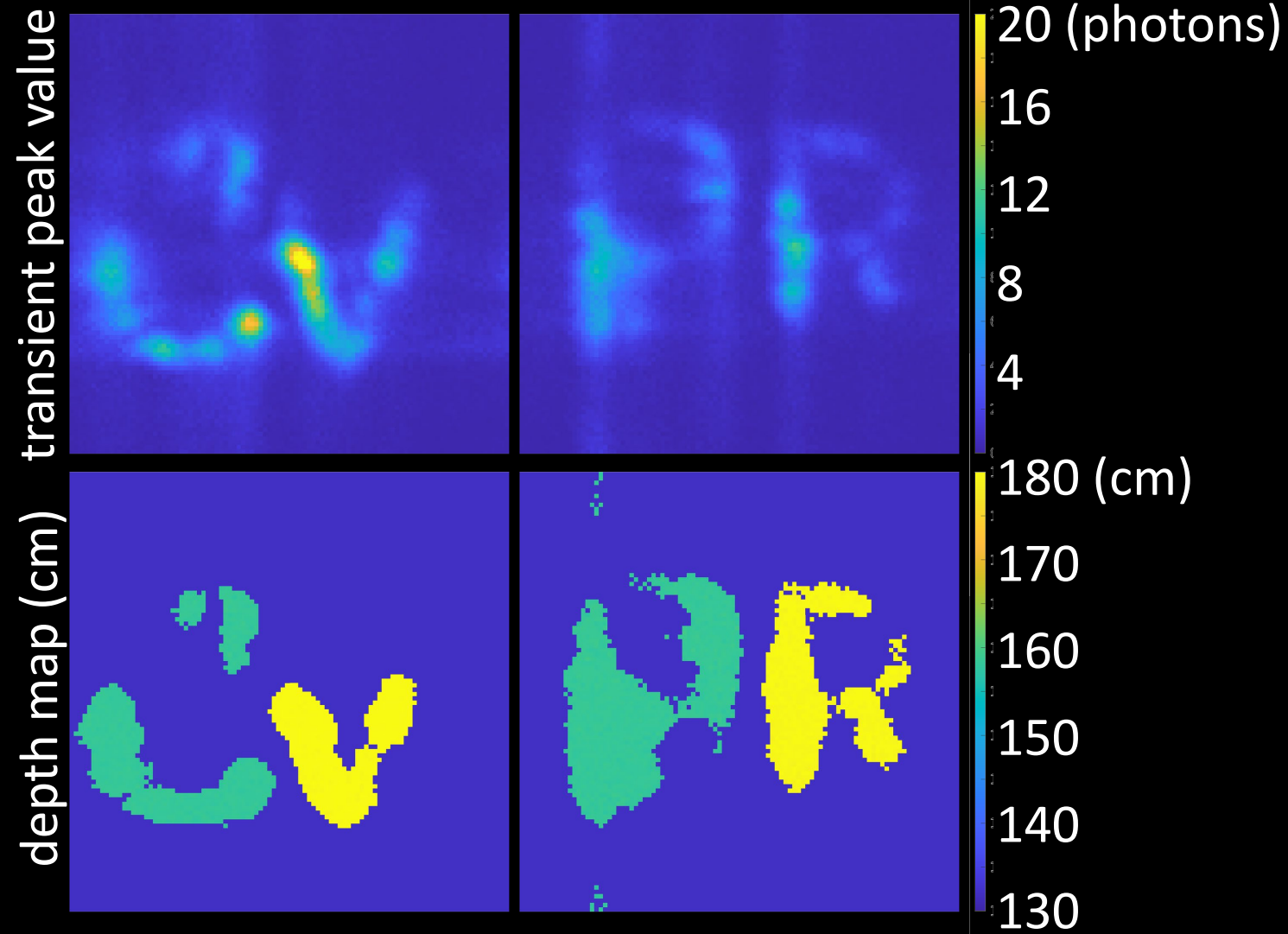
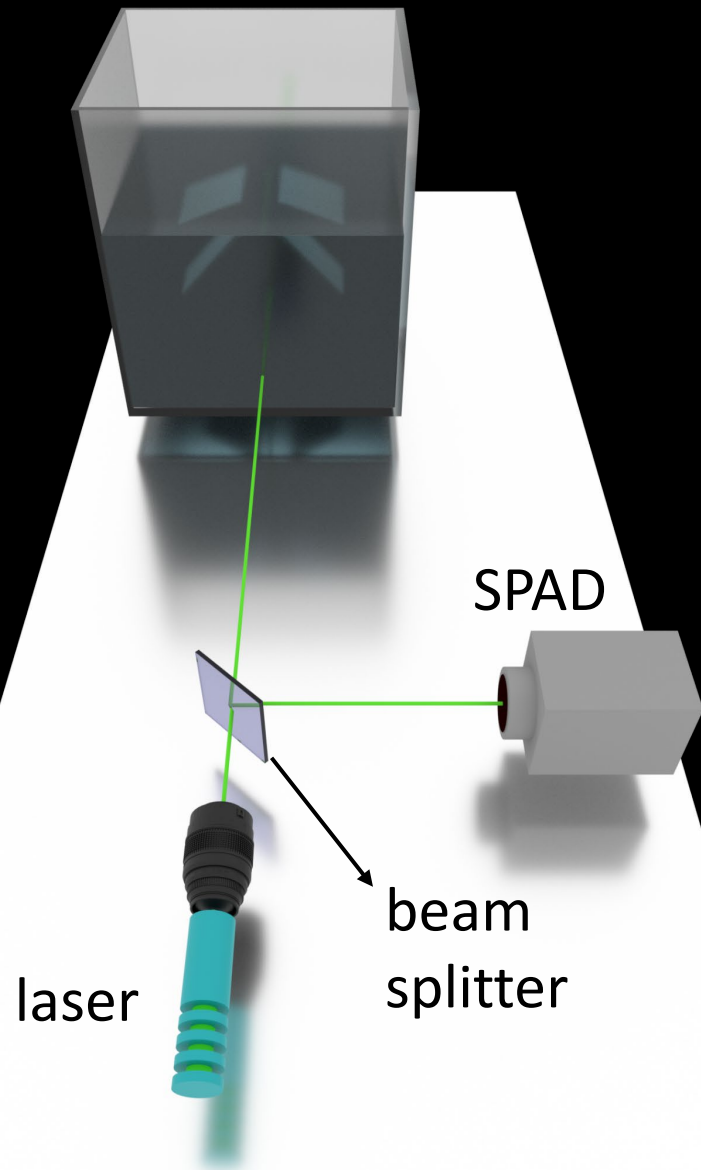
exposure= 50 ms



exposure= 50 ms

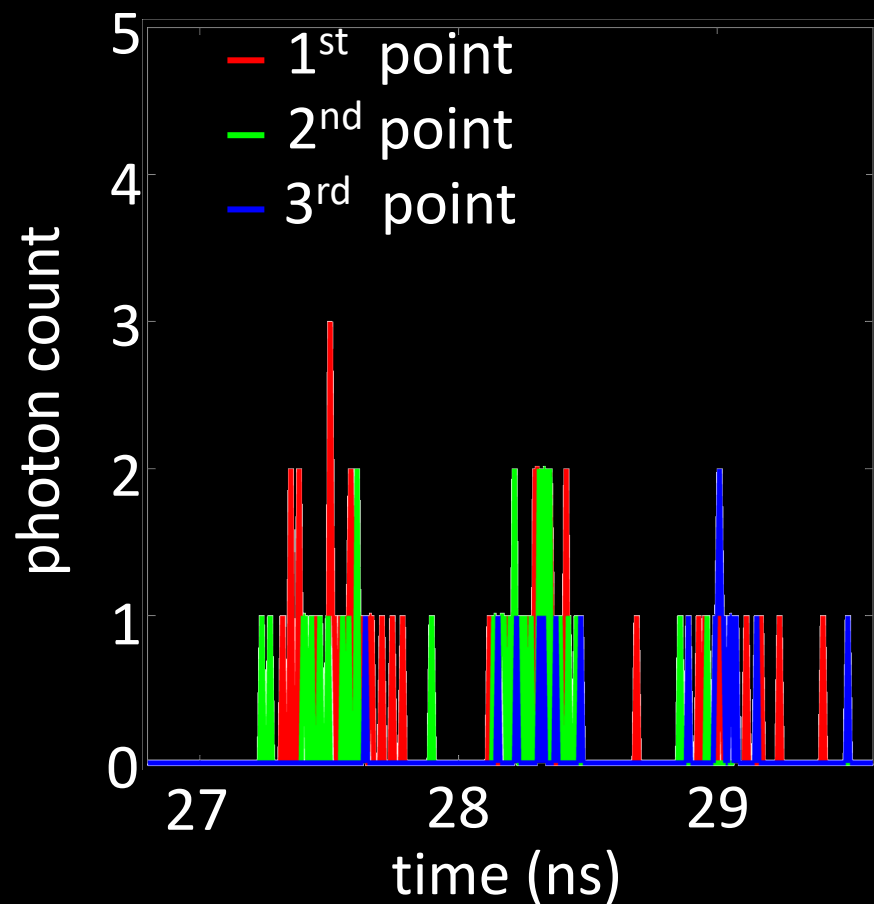


Lidar

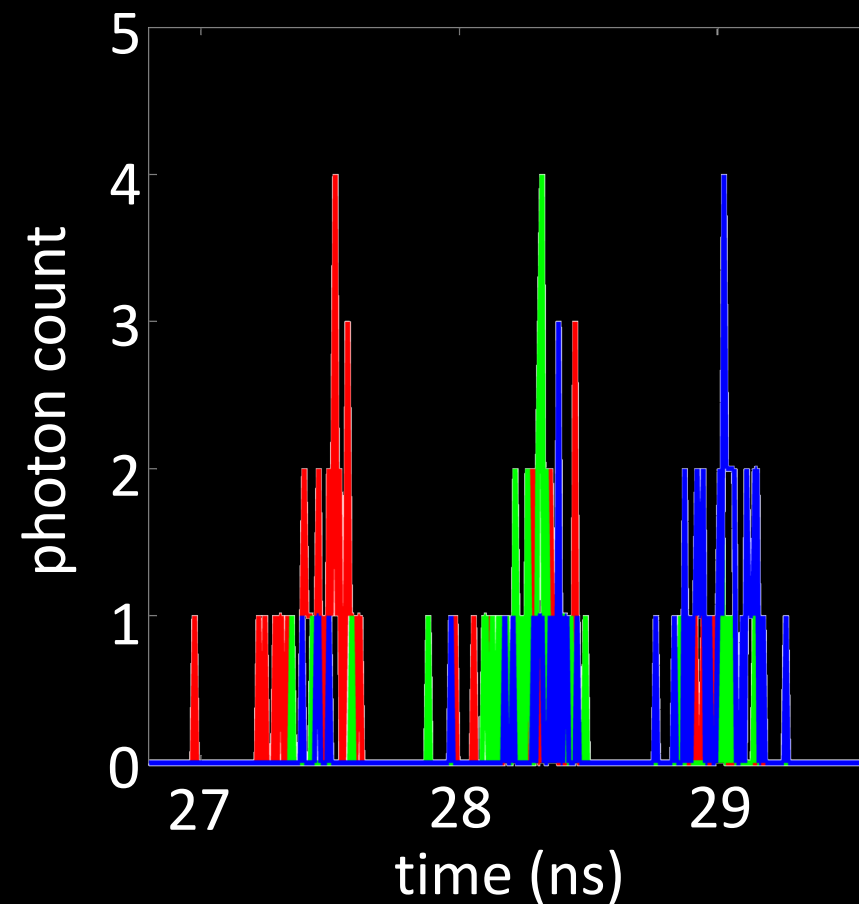


100 × faster than standard lidar

Adaptive depth measurement



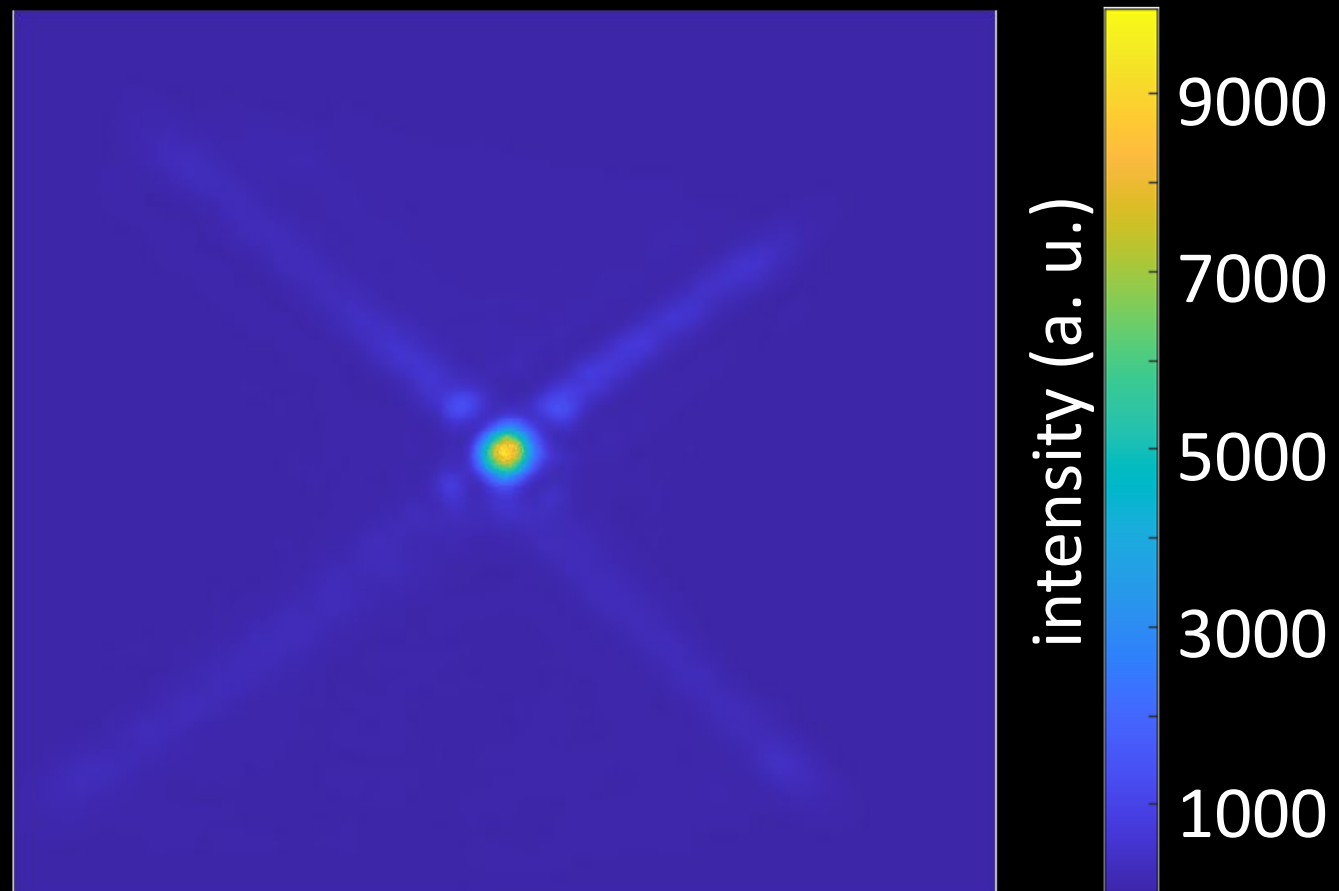
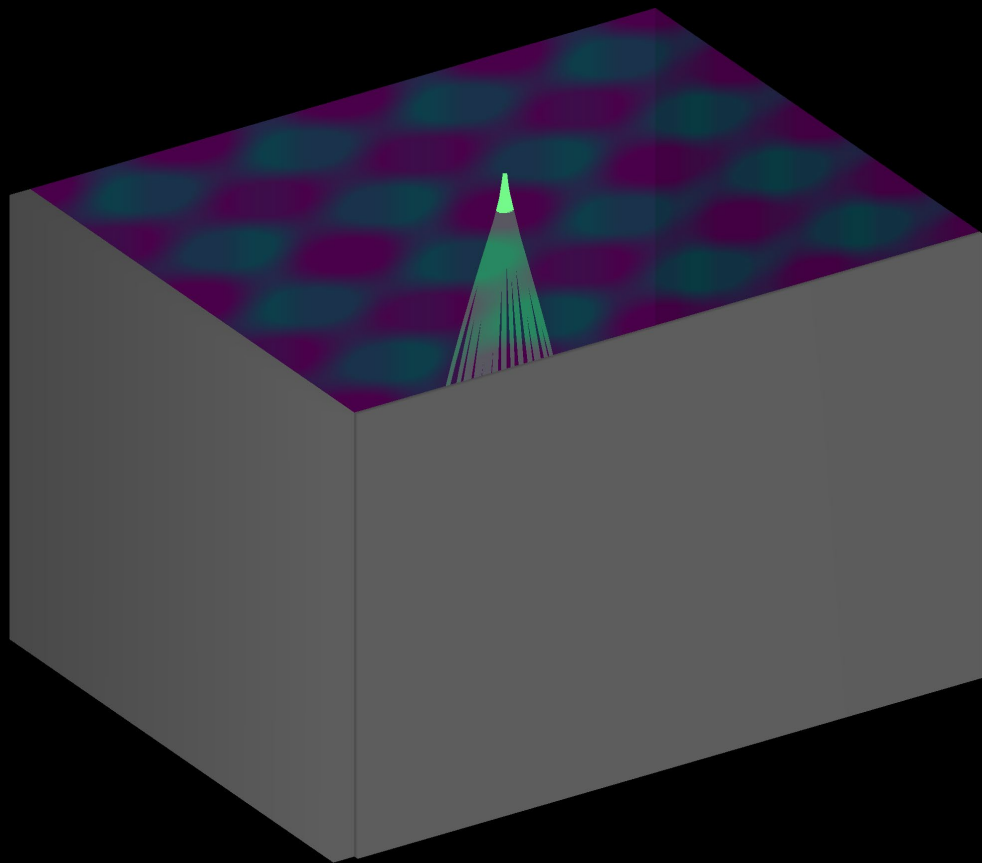
standard galvo (depth error = 51.3 cm)



our technique (depth error = 3.28 cm)

15 × depth accuracy

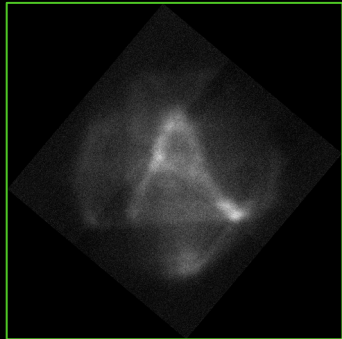
Limitation



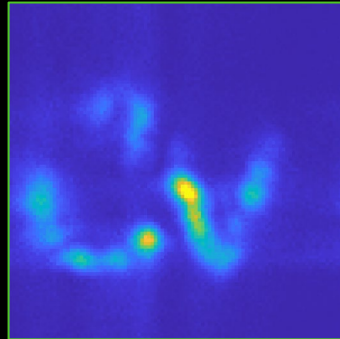
Summary



1000 $\times$ faster projector



100 $\times$ faster lidar



15 $\times$ depth accuracy

