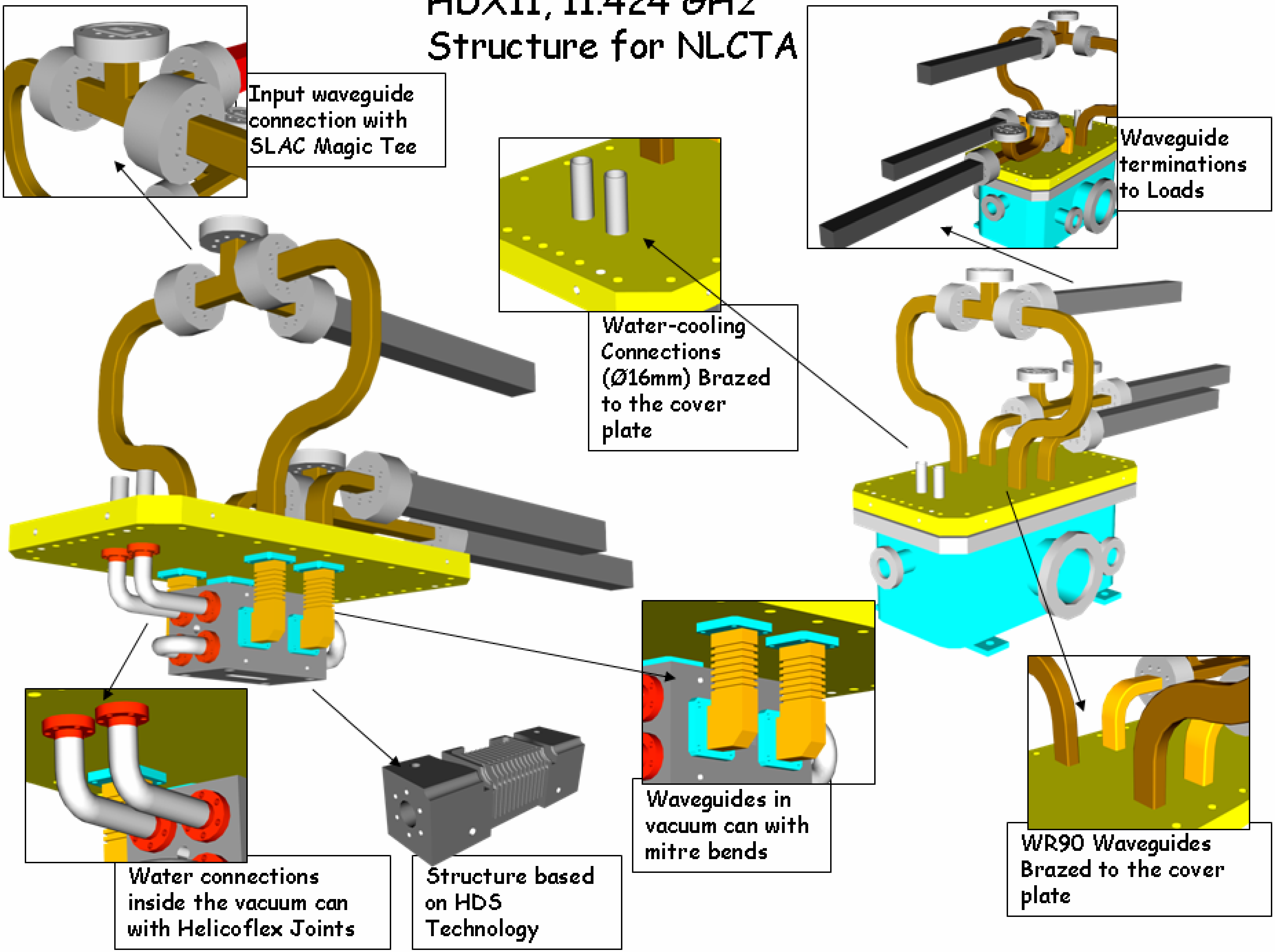
The CLIC proposal for High Power testing in NLCTA

- Built two short HDS-type structure to test at X-band
  one in Copper and one in Molybdenum
  11 cells with the geometry of the last cell in HDS60

- Test in NLCTA at the beginning of next year (February, March)

- Complement with 30 GHz structures at 30 GHz in CTF3
  (April →)

HDX11, 11.424 GHz Structure for NLCTA



HDX-11 Parameters

SLAC Names: L11vg5SI16-Mo, L11vg5SI16-Cu

f (GHz)	11.424
a/λ	0.16
a (mm)	4.2
d (mm)	1.445
Q	16000
r/Q (Linac Ω/m)	13000
Vg/c (%)	5.1
$\Delta\varphi$ (deg), lc (mm)	60, 4.374
For Eacc (MV/m) first cell	150
P (MW)	370
Es (MV/m)	250
ΔT (K)	6.9
Eacc avg (MV/m)	~ 130

Scientific Motivation for the CLIC X-band proposal

- Test HDS geometry and technology at high power
  {low phase advance, slotted iris, 4 quadrant design}
- Test design optimization logic
  {constrains: surface field and Power*sqrt(pulse length)}
- Benchmark with well known NLC copper data
- Learn about material dependence (Cu vs Mo)
- Learn about frequency dependence
  {similar tests at 30 GHz in CFT3 in 2006}
- Get more statistics

We are not aiming to demonstrate the CLIC structure
or the CLIC gradient at X-band with these experiments !

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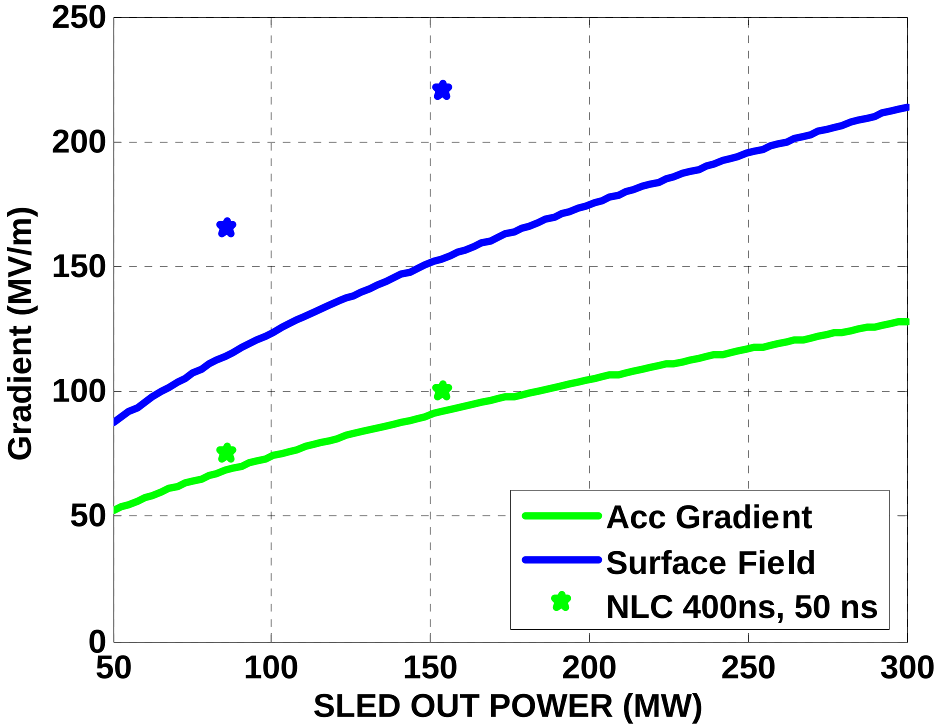
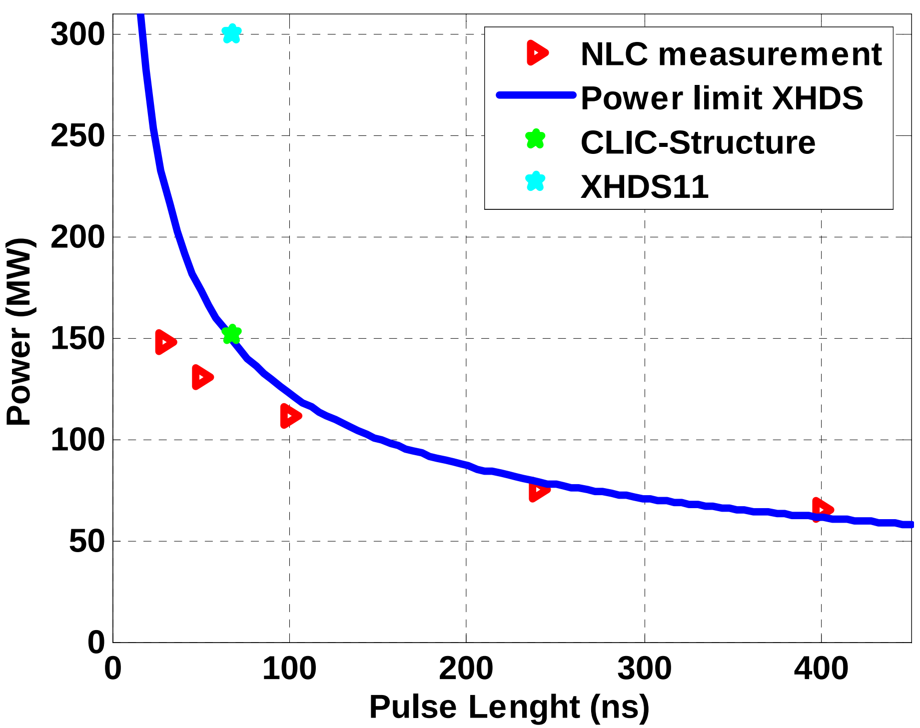
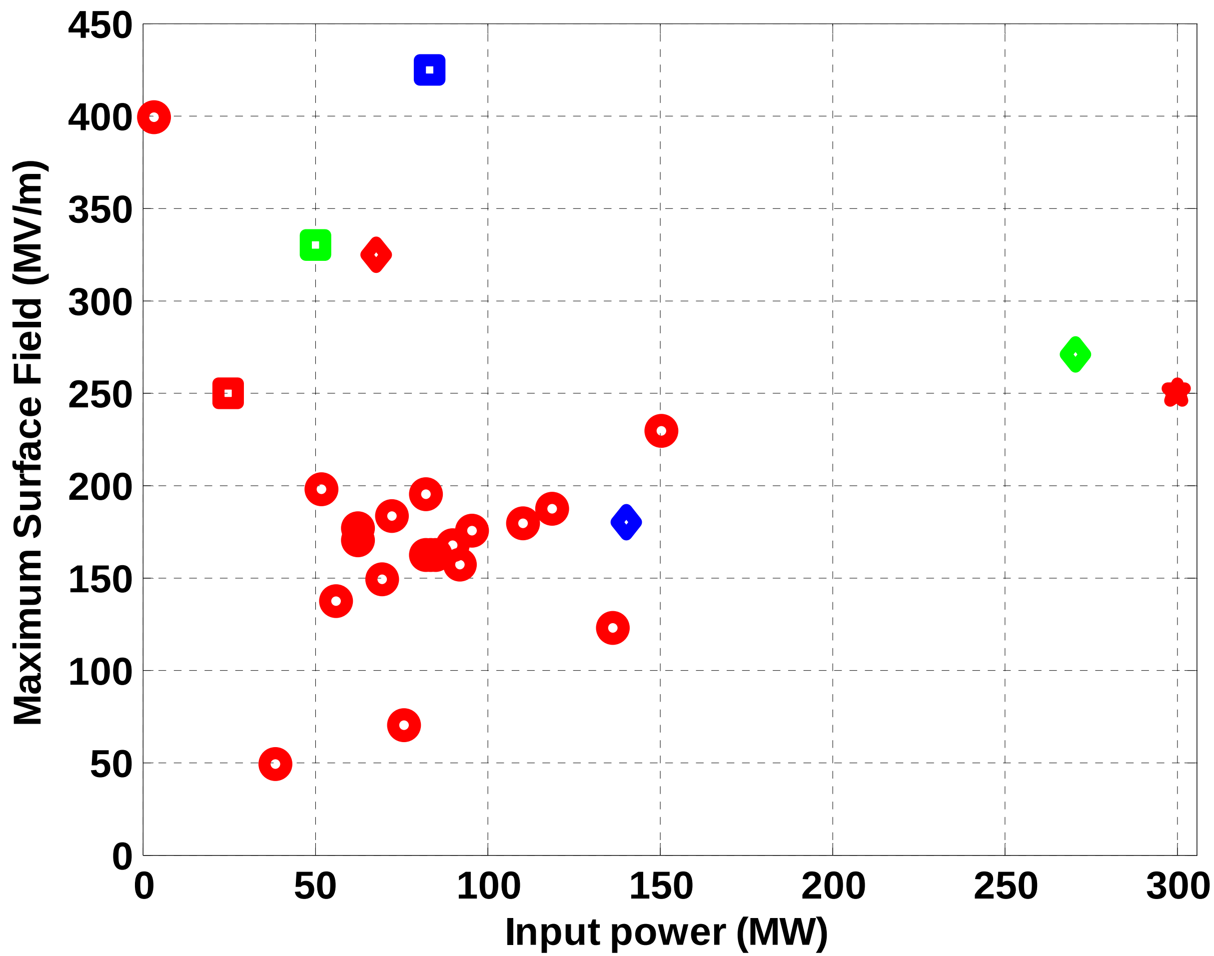




Another way to look at it



red = copper, green = tungsten, blue = molybdenum

Square = 30 GHz, Diamond = Cern X-band, Circle = SLAC X-band

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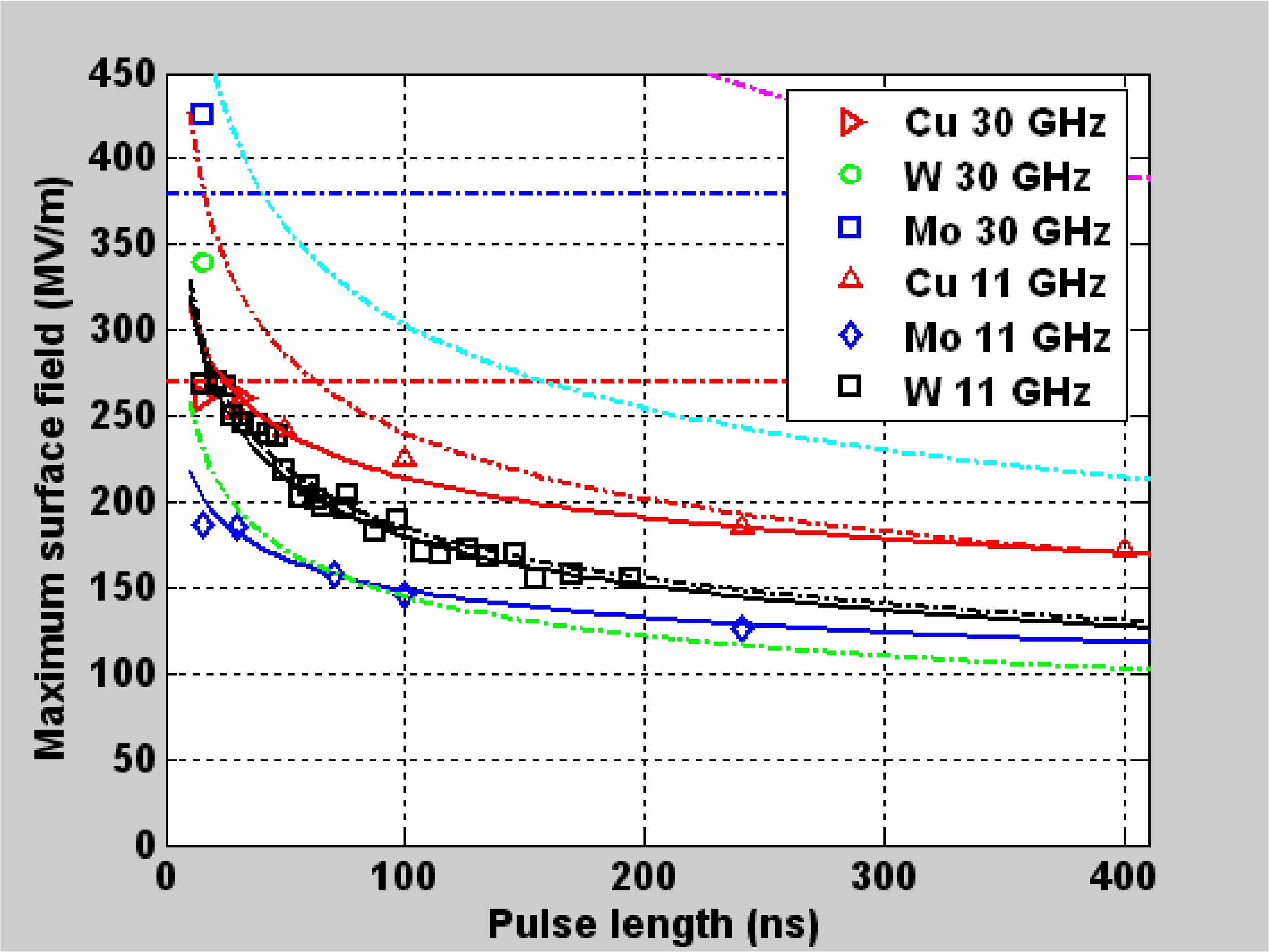
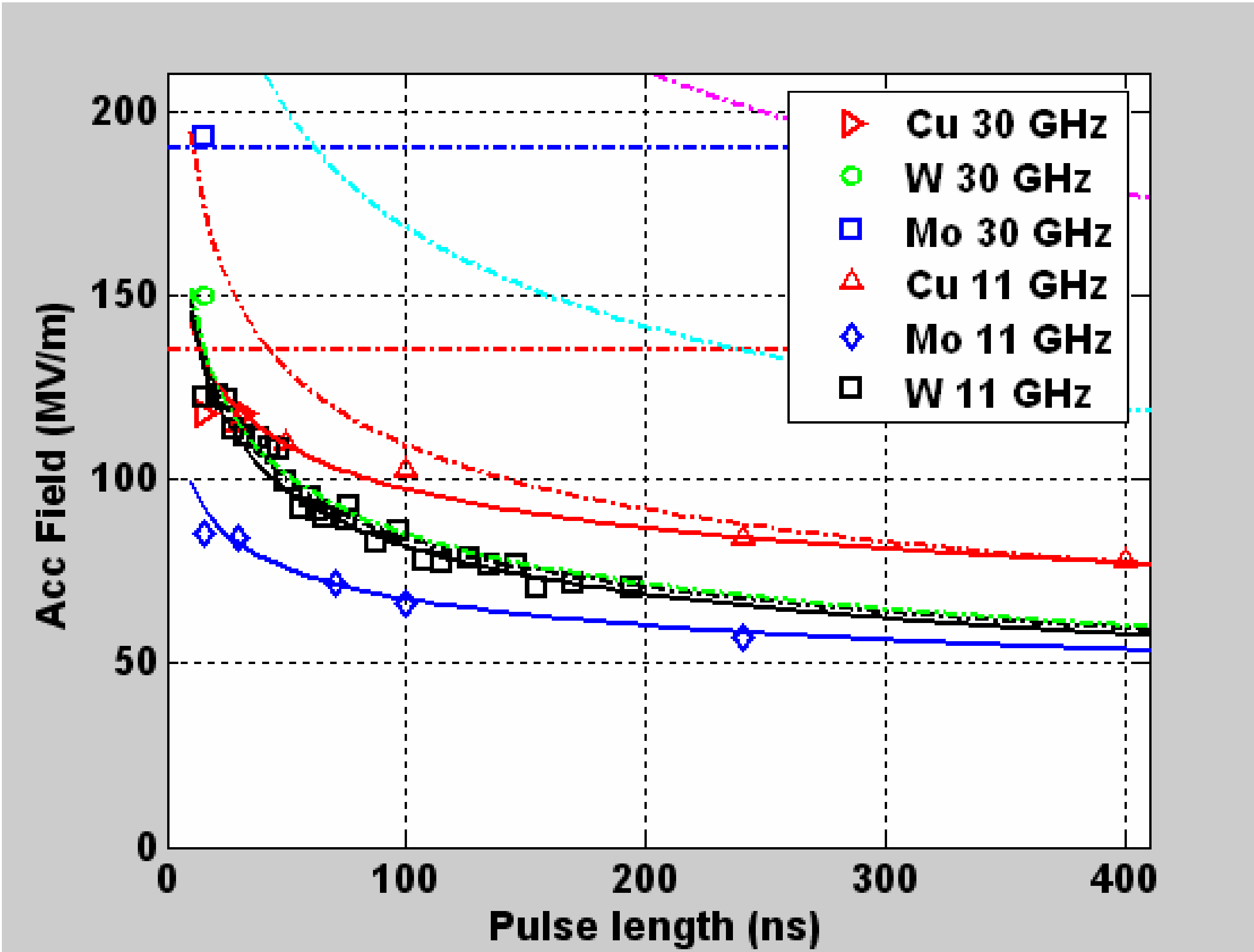


Power-sqrt(t)-limit: 30 GHz 3.5 mm, HDS60, NLC, W-X-band, X-HDS11

Scientific Motivation for the CLIC X-band proposal



Power-sqrt(t)-limit: 30 GHz 3.5 mm, HDS60, NLC, W-X-band, X-HDS11