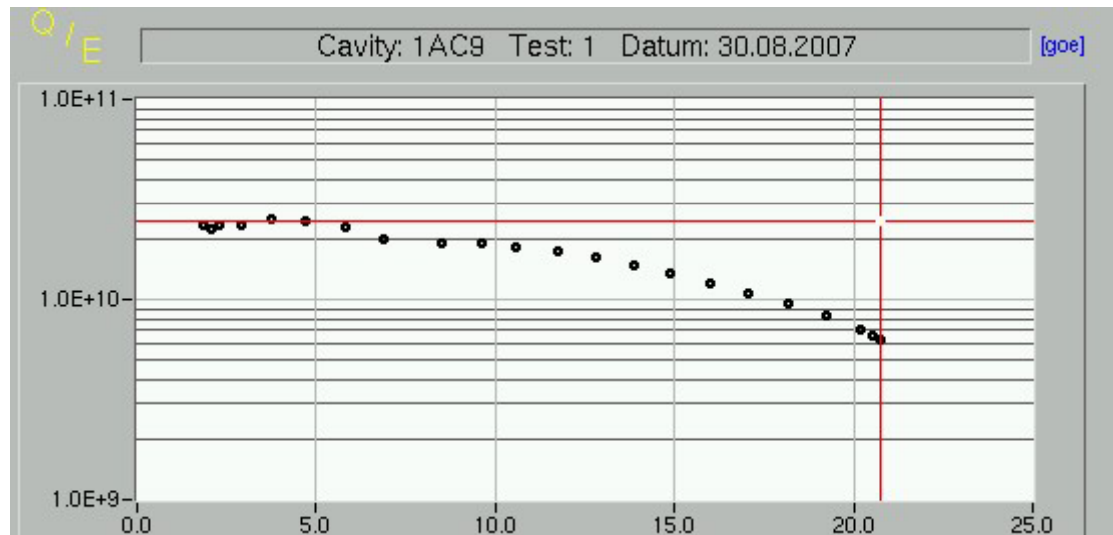


HF + H₂SO₄ free Poligrat/Accel EP: first result

- fabricated of spare Nb => no material spec available
all BCP + EP at Accel Instruments; **no 800C firing**; HPR + rf test at DESY; T-Maps taken
- Test 1: 5 μm BCP, 250μm **new HF- + H₂SO₄ - free Poligrat/Accel-EP**; HPR:
 $E_{\text{acc}} = 21 \text{ MV/m @ } Q_0 = 5,5 \cdot 10^9 \text{ (T=2K)}$; no FE, no MP, lim. by BD



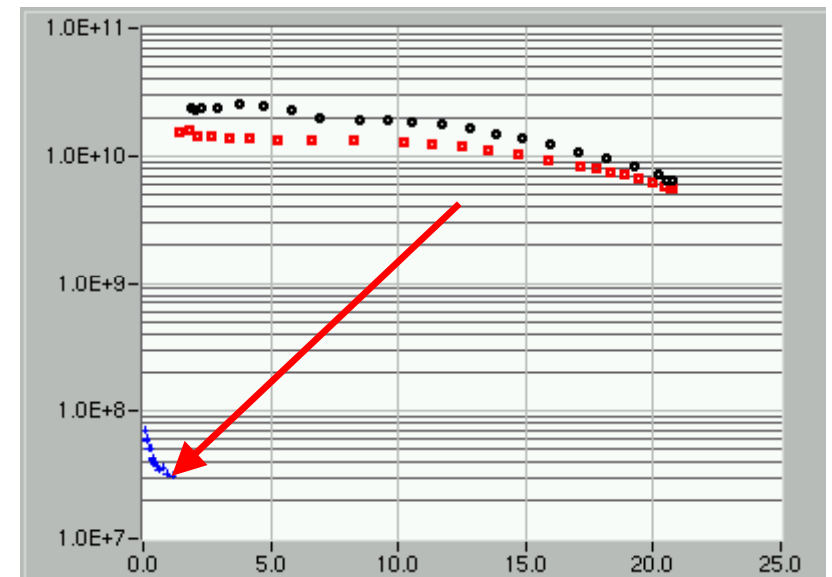
First Q(E)-measurement at 1.8K

- Test 2: after 16h at 100K: strong Q-disease ($Q_0 < 10^8$; $E_{\text{acc}} < 1 \text{ MV/m}$)

HF + H₂SO₄ free Poligrat/Accel EP: first result

Summary + next steps:

- Gradient of 21MV/m in first test of HF + H₂SO₄ free Poligrat/Accel EP in cavity of undefined Nb quality
=> **very promising result !!**
- Strong Q-disease => 800C firing necessary (week 37) => new short EP
- Qualified single-cell cavity to Accel



1AC9: detailed history

- Cavity made of residual, spare fine-grain Nb material (ACCEL)
=> unknown RRR, mechanical + material properties
- Complete cavity fabrication at ACCEL Instruments Co.
- All etching + electropolishing at Accel Co.
- Electropolishing according to new HF- + H₂SO₄ free Poligrat / Accel procedure
- Assembly, HPR and test at DESY (CTA)
- Next step: 800C firing + new EP

1AC9 more rf-data

	Test 1 after 5 μ m BCP, 170 μ m EP, HPR	Test 2 after 16h at 100K	Test 3	Test 4
$R_{\text{res fit}}$	6,4 n Ω	~ 5000 n Ω	n Ω	n Ω
$\Delta/k_B T_C$ ($T_C = 9,2\text{K}$)	1,91	-		
$Q_{\text{BCS}} (4,3\text{K})$	$4,0 \cdot 10^8$	$\sim 4,0 \cdot 10^7$		
$Q_{0,\text{max}} (1,8\text{K})$	$2,5 \cdot 10^{10}$	-	$\cdot 10^{10}$	$\cdot 10^{10}$
$Q_0 (E_{\text{acc}} = 23,5 \text{ MV/m})$	n.a.	-	$\cdot 10^{10}$	$\cdot 10^{10}$