

ILC-HiGrade 3<sup>rd</sup> scientific workshop

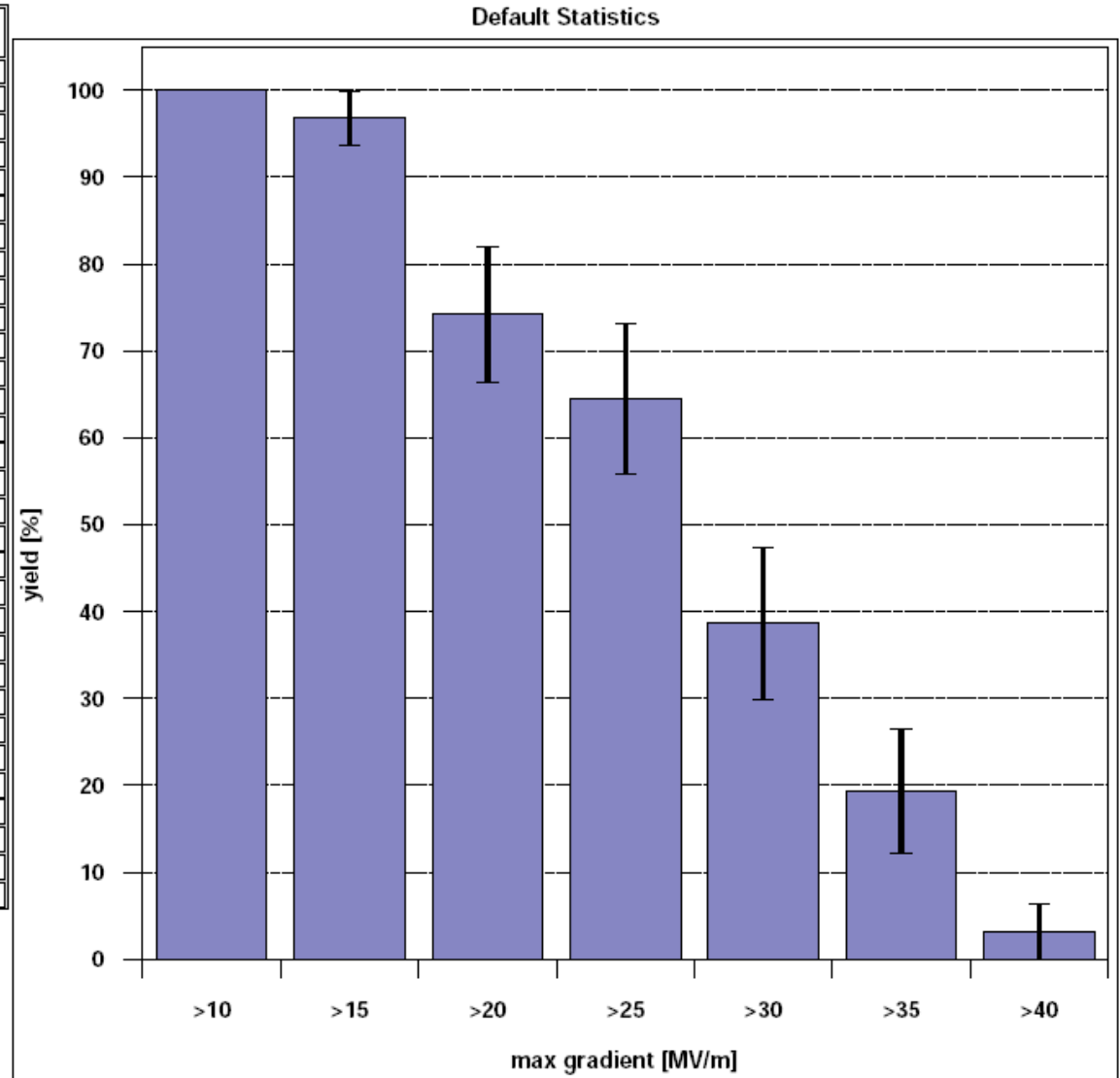
# Optical Mapping

S. Aderhold

DESY

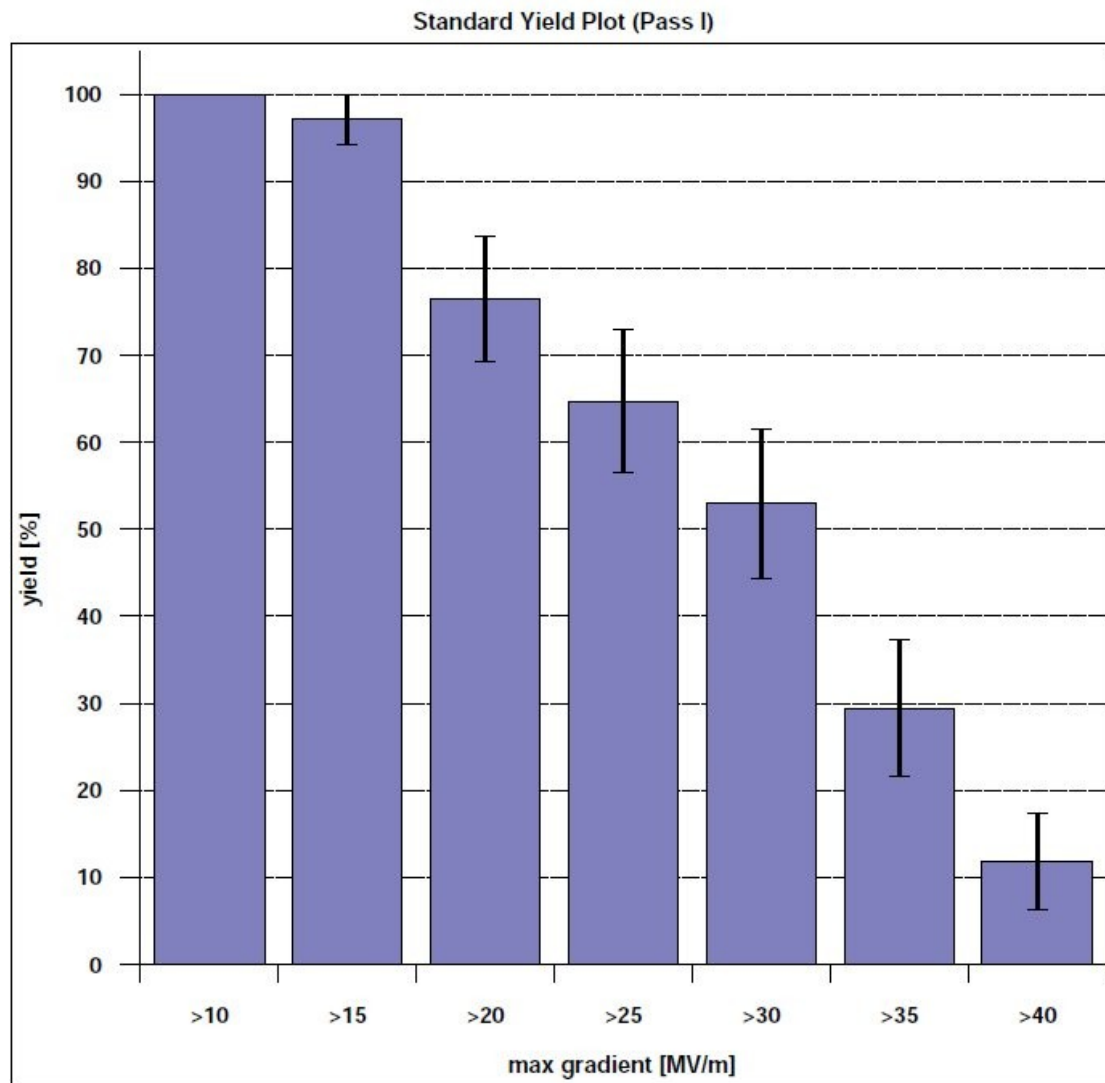
# ILC cavity yield

No.	Cavity	Test Date	Max. Eacc [MV/m]
1	TB9ACC013	01.Dec.08	41.80
2	AC122	26.Aug.08	38.88
3	AC115	11.Dec.07	38.60
4	Z104	20.Jun.07	37.80
5	TB9ACC011	21.Aug.08	37.00
6	TB9ACC012	07.Jul.08	35.10
7	AC125	15.Jun.08	34.59
8	AC150	30.Jan.09	34.33
9	Z143	09.Oct.08	32.57
10	Z88	25.Jul.07	32.10
11	AC127	13.Feb.09	31.25
12	Z106	25.Jan.07	30.10
13	Z101	13.Feb.07	29.20
14	ACCEL7	05.Sep.06	29.00
15	Z102	23.Aug.06	26.80
16	AC149	28.Jan.09	26.51
17	Z97	30.May.07	26.20
18	AC124	05.Feb.09	26.01
19	TB9ACC014	17.Apr.09	26.00
20	Z137	24.Feb.09	25.23
21	Z139	12.Sep.08	24.93
22	Z108	09.Jan.07	22.90
23	Z93	30.Mar.06	22.50
24	ACCEL6	12.Dec.06	19.00
25	Z141	16.Apr.08	18.29
26	TB9ACC015	02.Jul.08	18.00
27	Z130	01.Sep.08	17.30
28	Z131	20.Aug.08	17.17
29	Z132	19.Aug.08	16.83
30	AC126	05.Sep.08	16.37
31	Z110	19.Dec.06	13.80

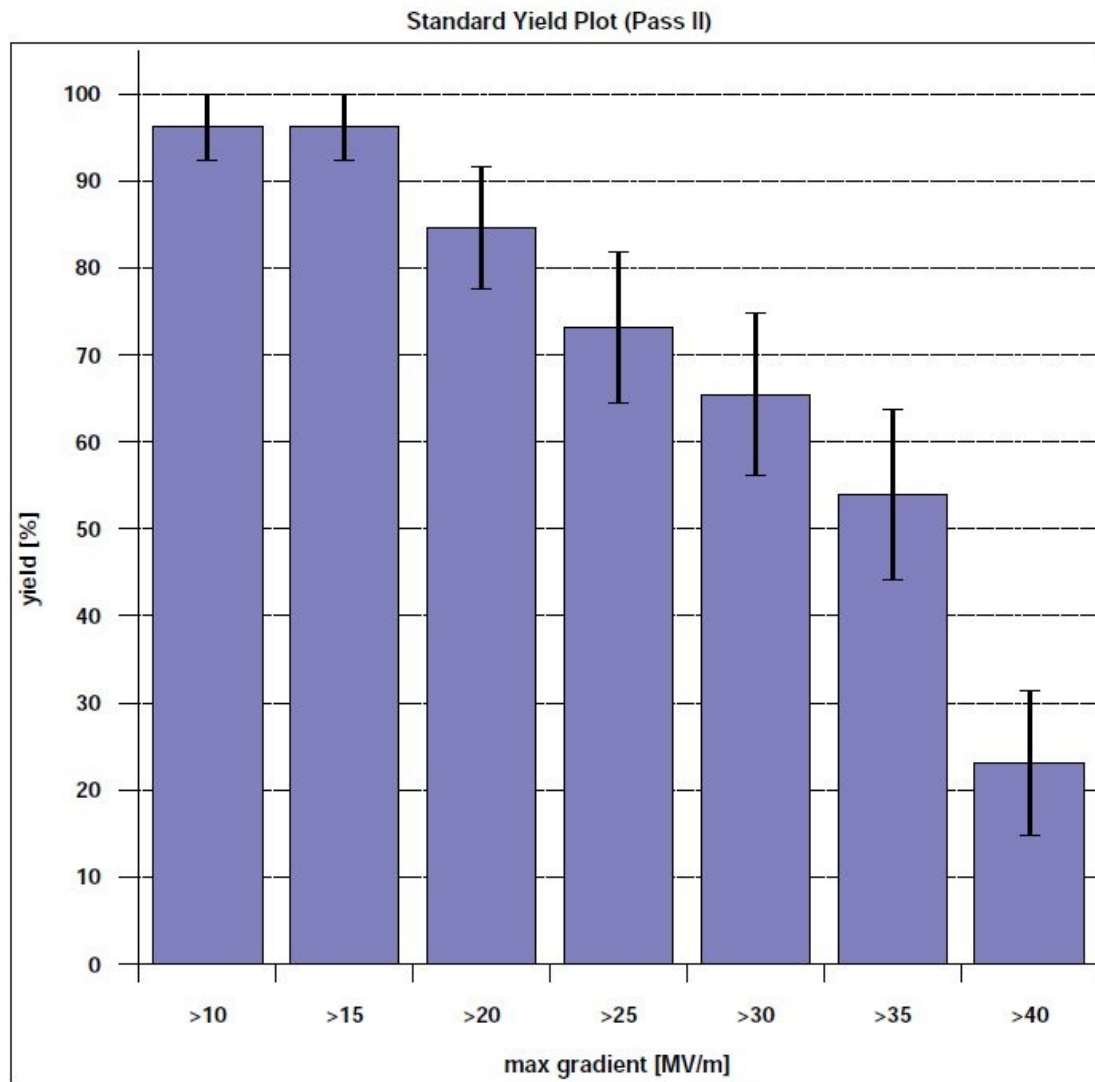


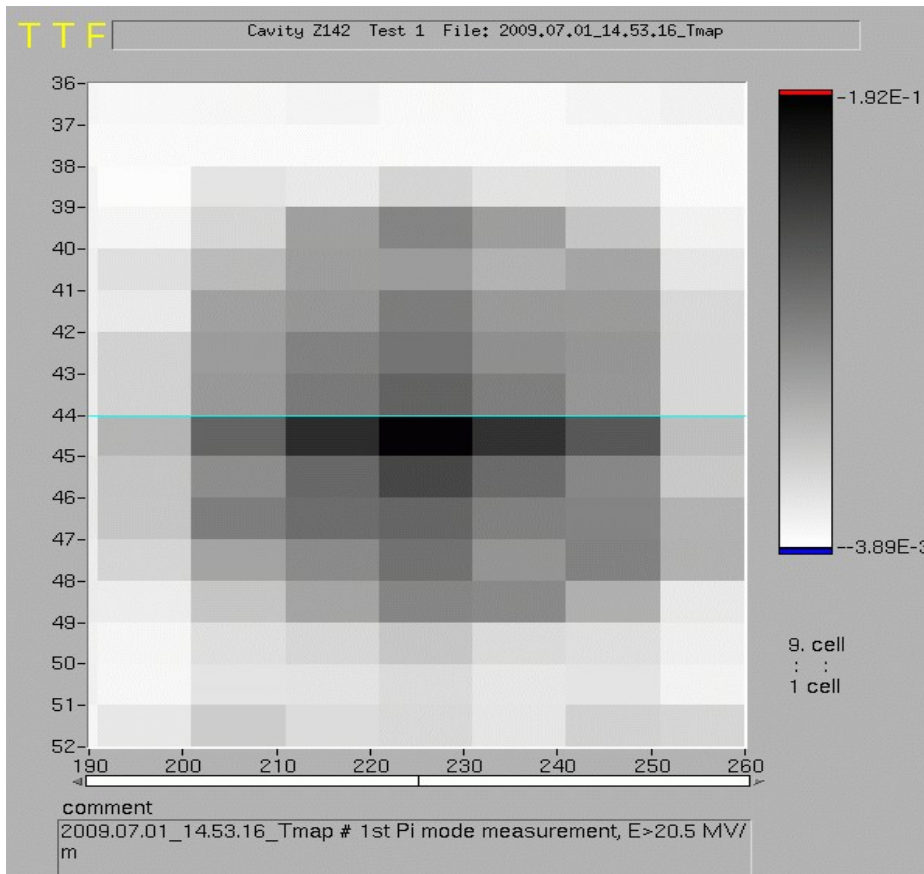
Version of last meeting,  
Feb. 2010

- Some additional cavities
- 1<sup>st</sup> pass yield slightly improved

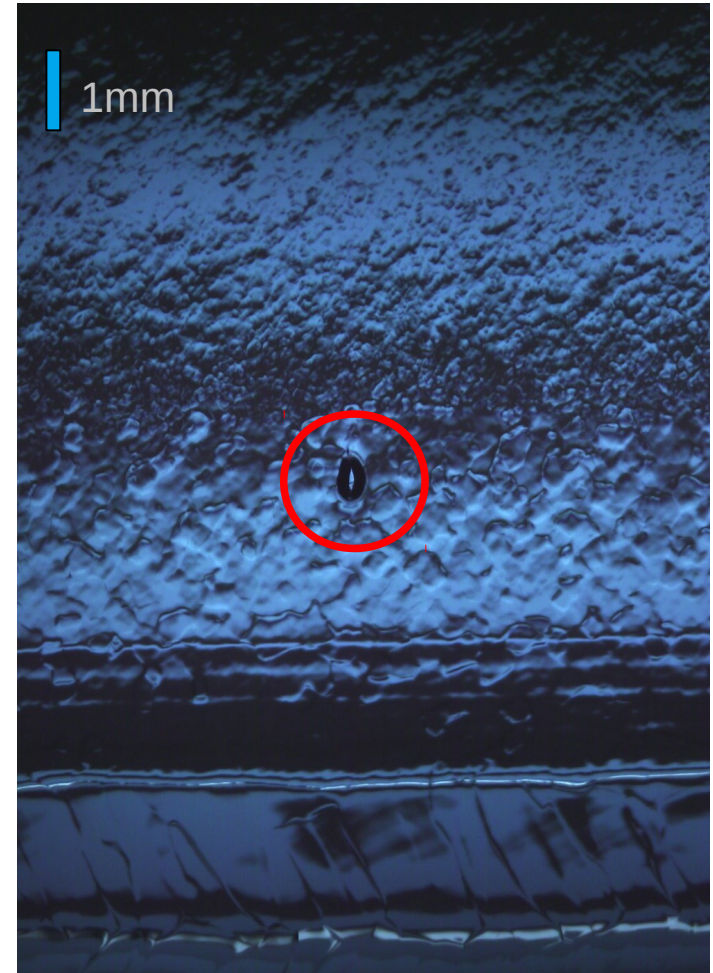


- Improvement towards ILC-goals by 2<sup>nd</sup> treatment
- We learn what do do!



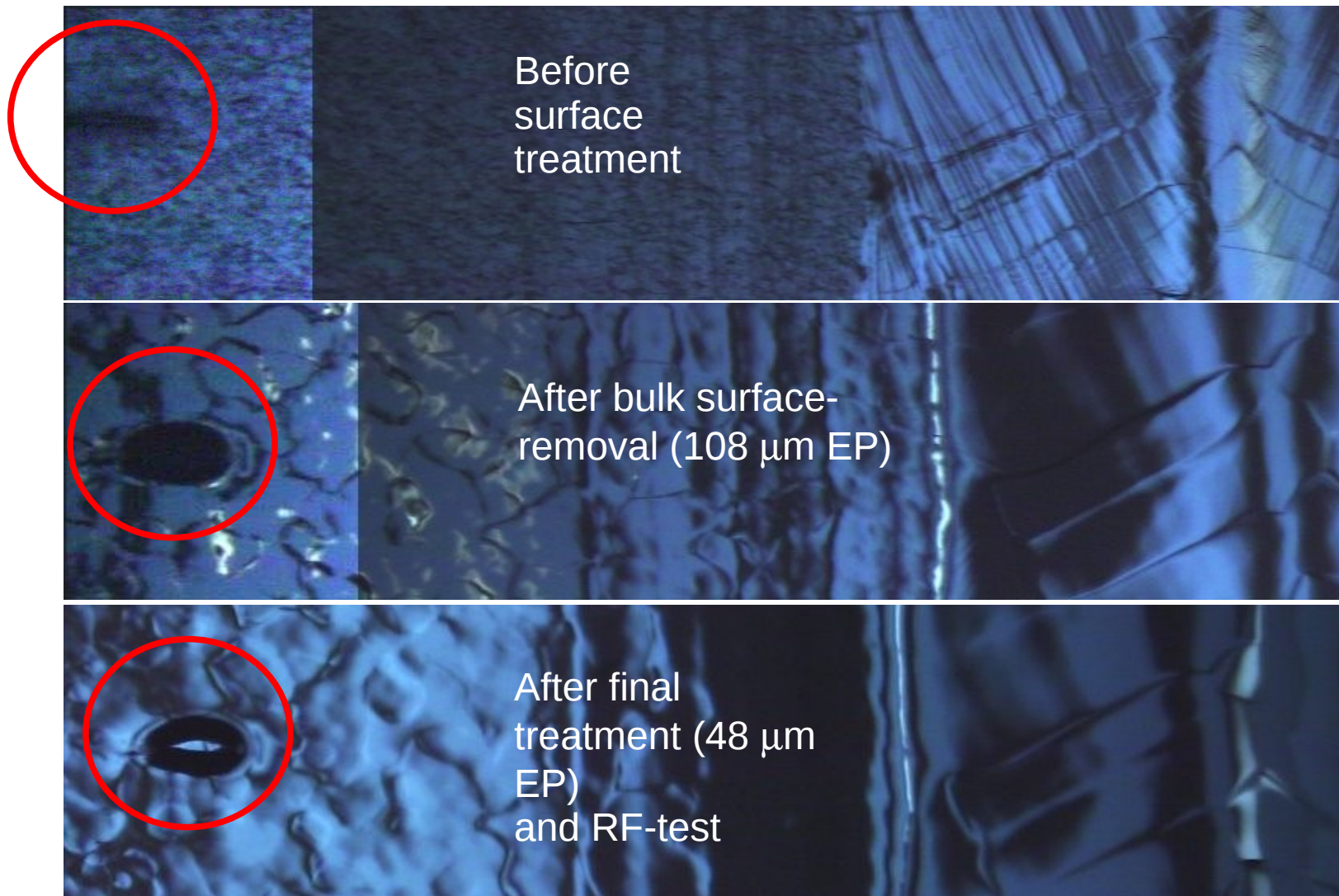


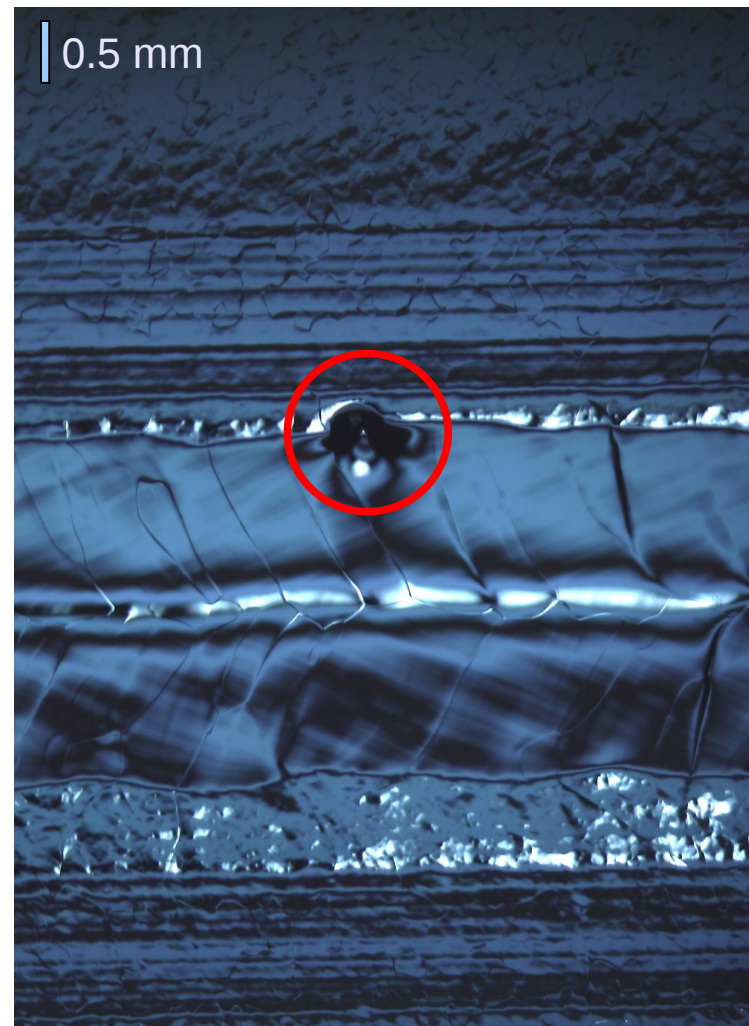
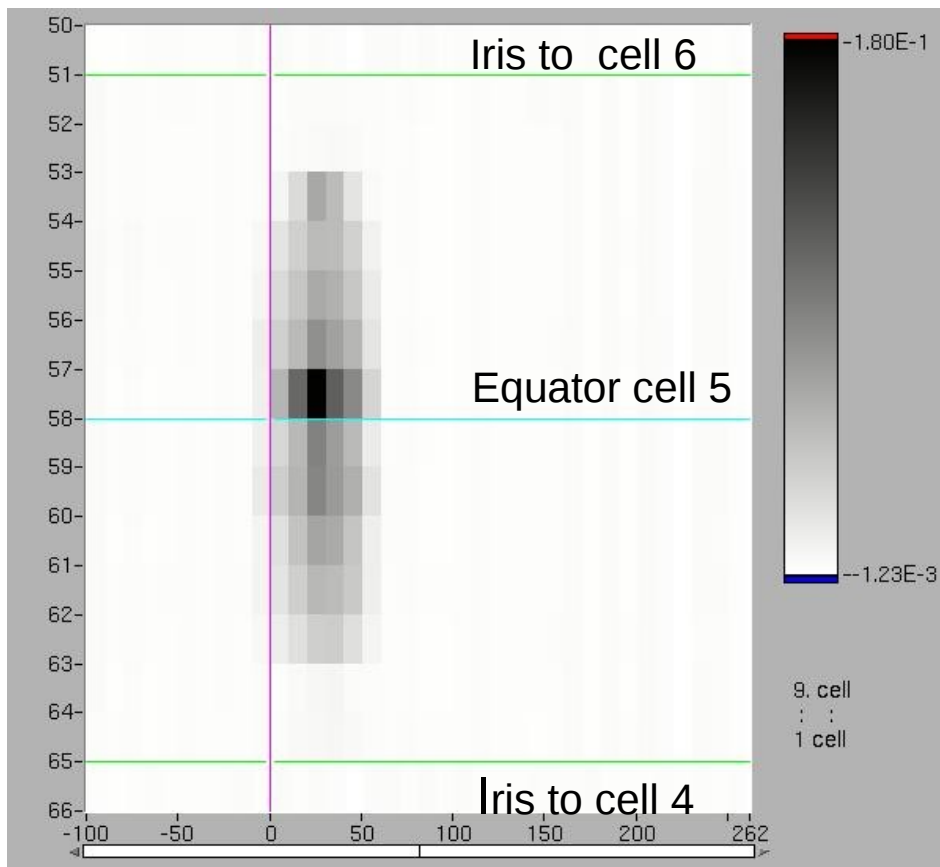
Hotspot during Tmap at equator 6  
in pi-mode,  
Limited at 20.6 MV/m



Same region inside cavity after  
RF-test

# Evolution of defect in Z142



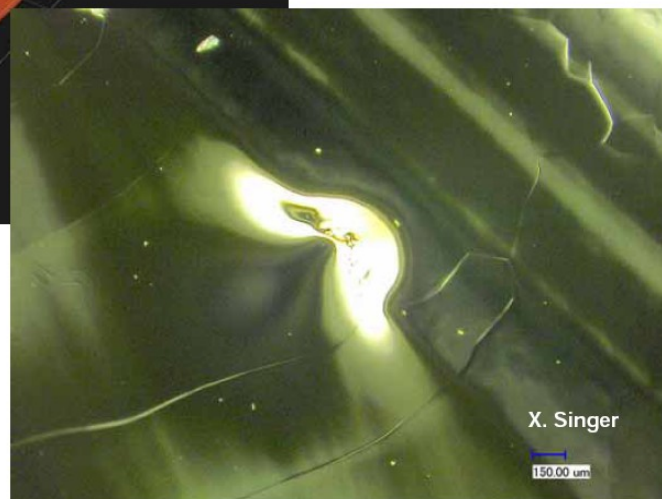
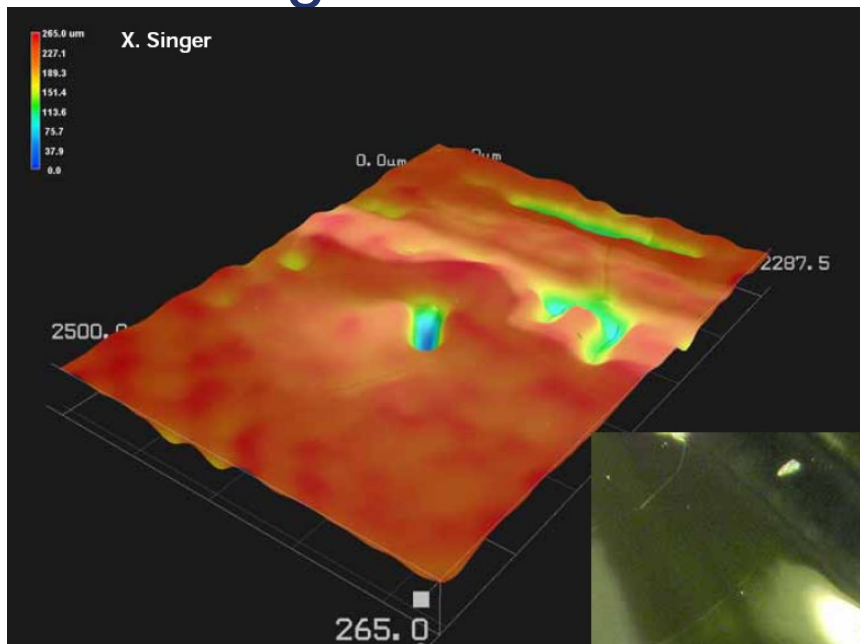


Z130: Quench in  $3\pi/9$ -mode at 22 MV/m

Picture of same location

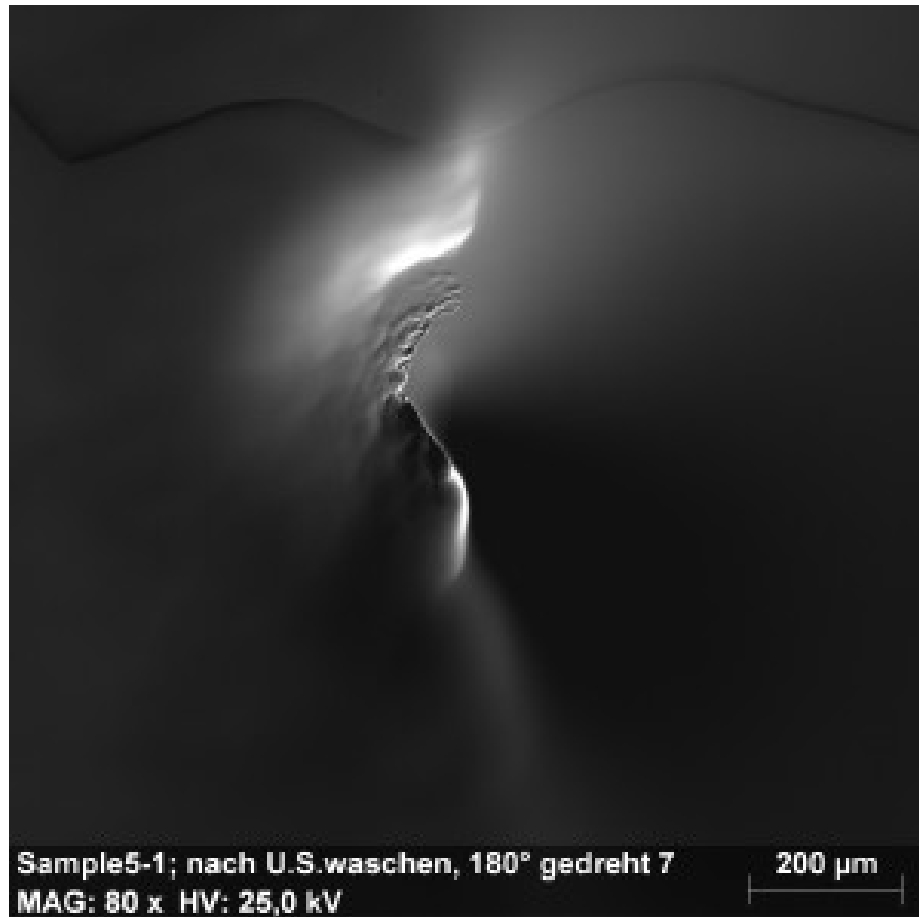
# Defect in Z130

- Cavity has been cut for further investigation
- EDX: no foreign material

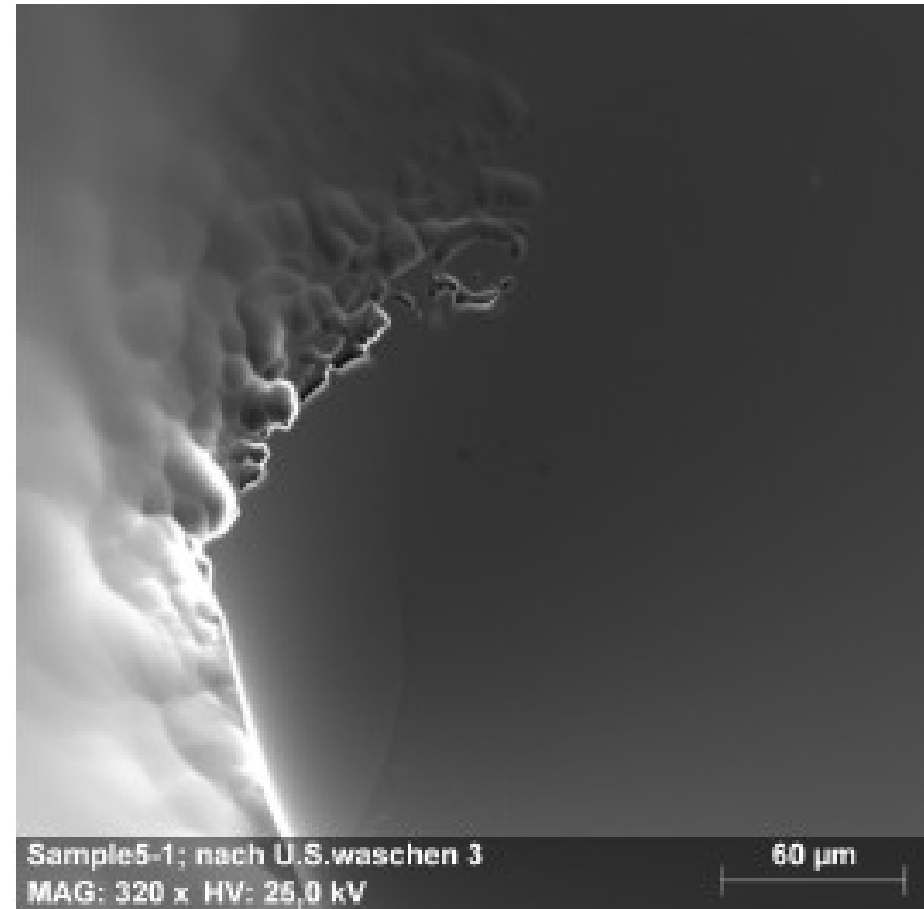


W. Singer, X. Singer, A. Ermakov



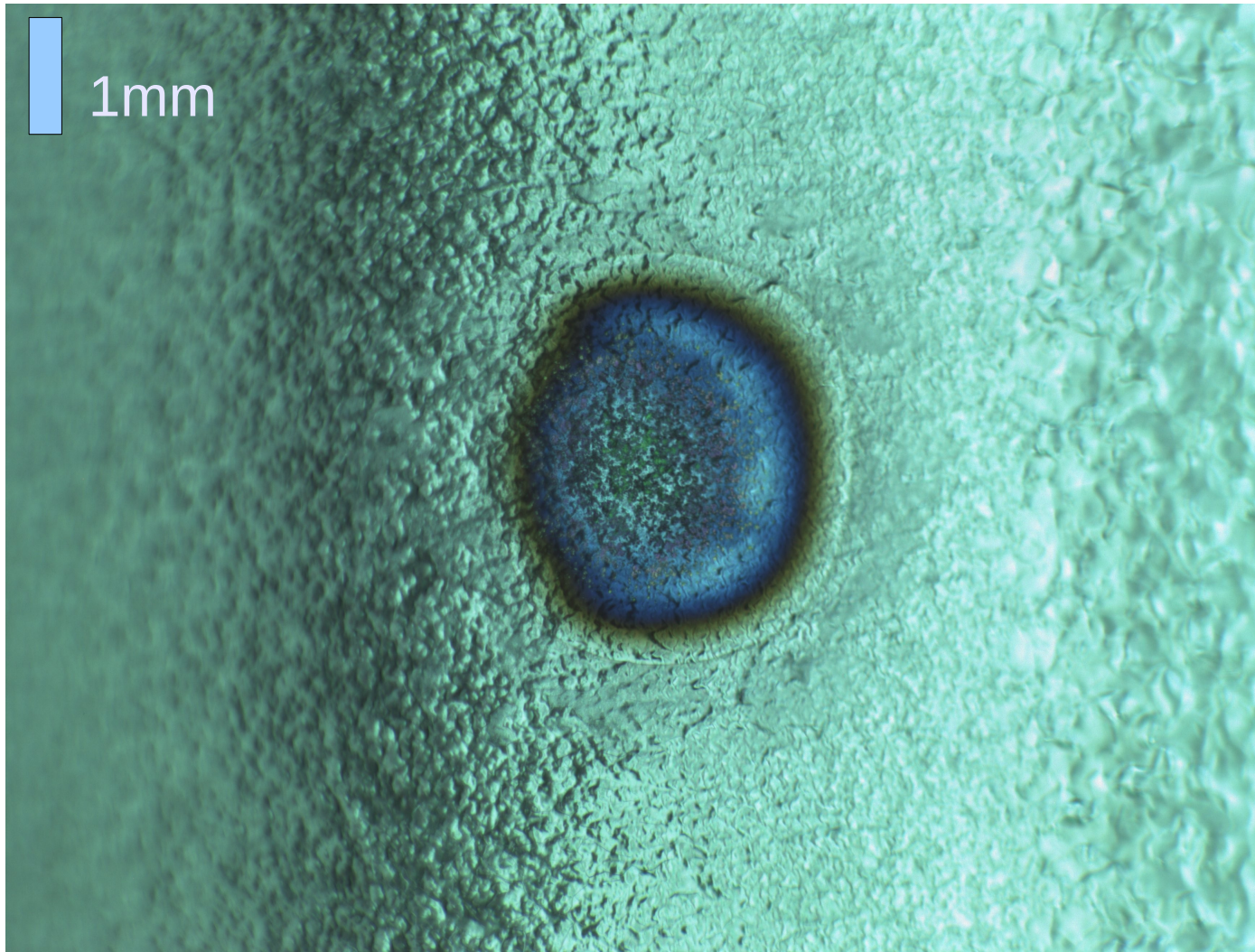


[D.Reschke]

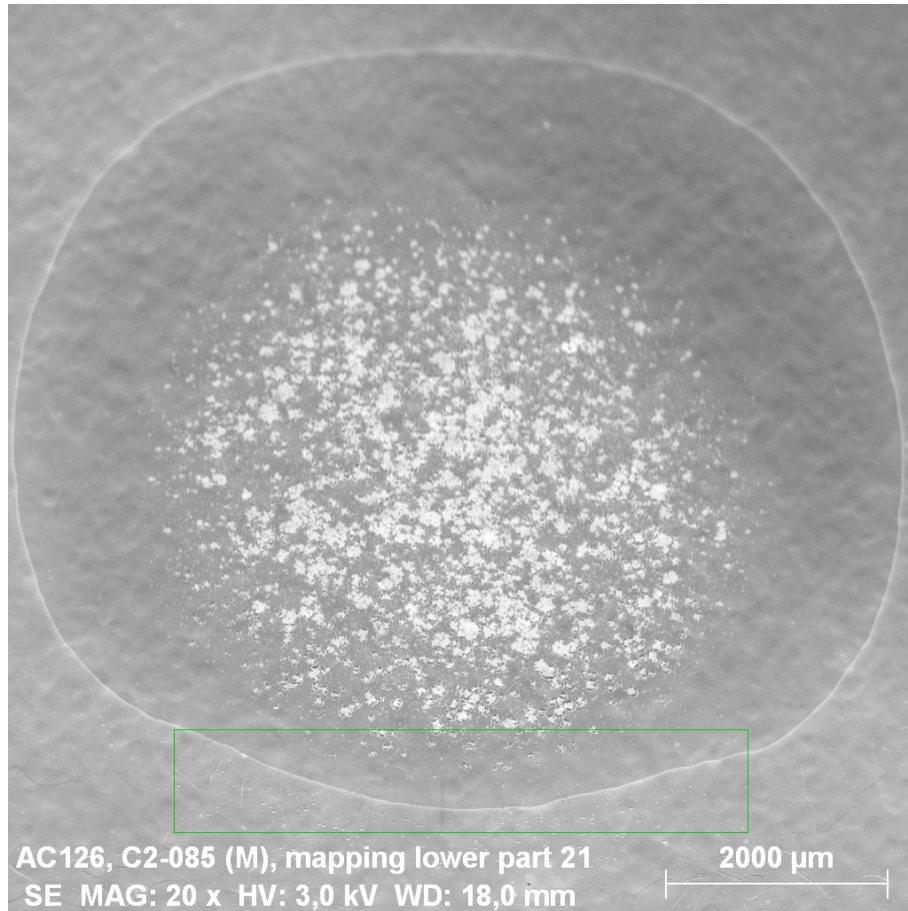


Sharp ridges at edge of defect

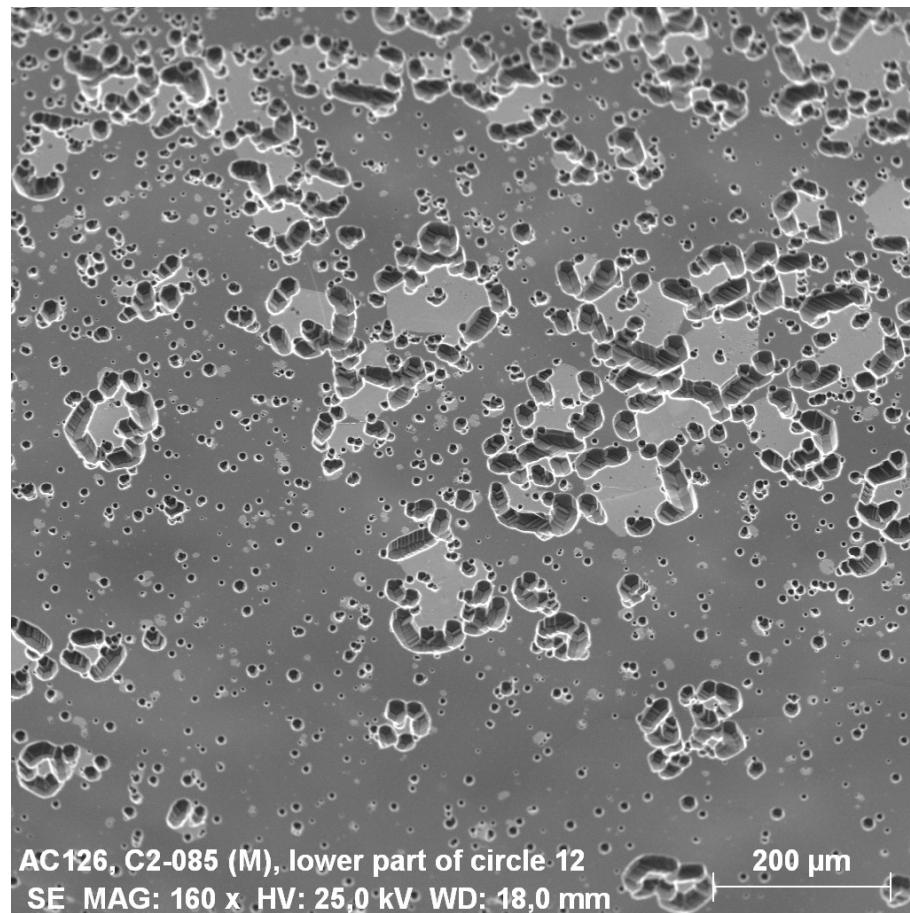
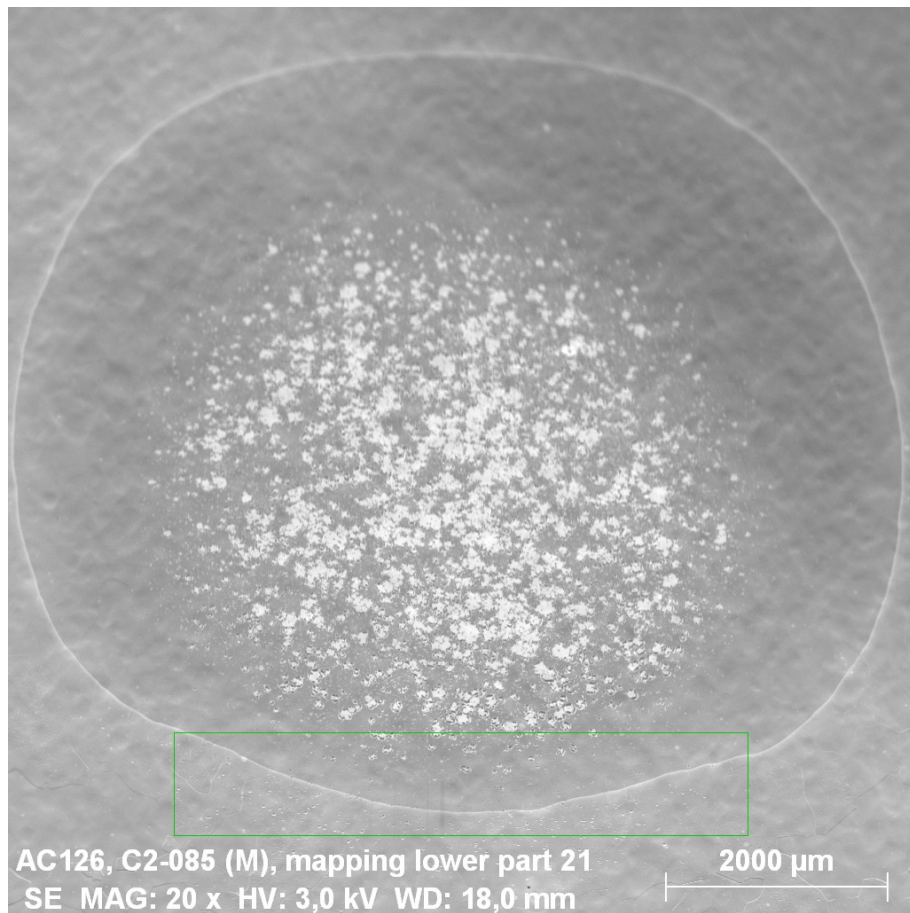
# Quench location in AC126

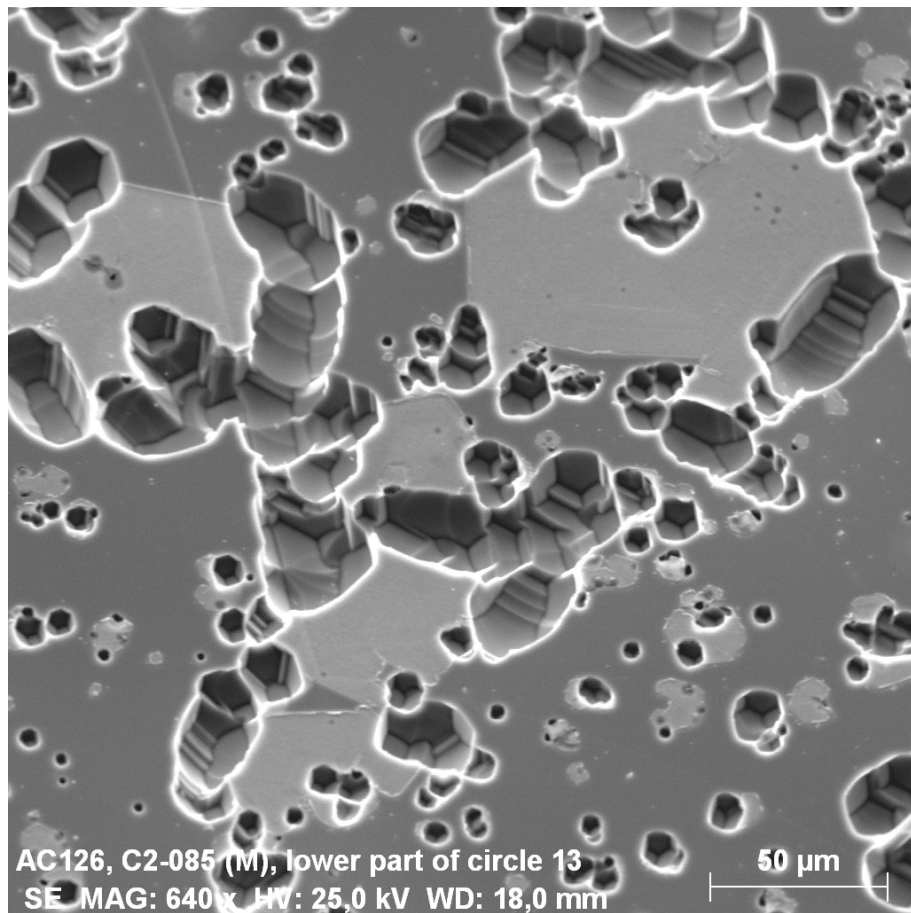


Quench position indicated by 2<sup>nd</sup> sound: cell 2, t=85 deg, next to equator

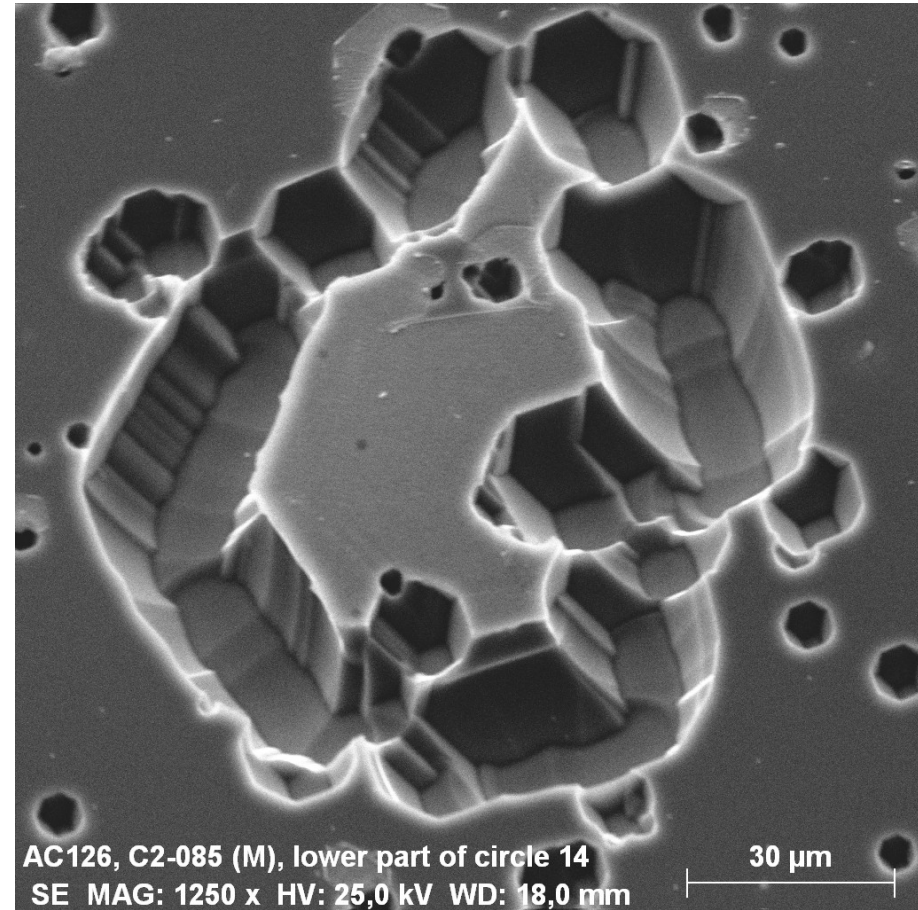
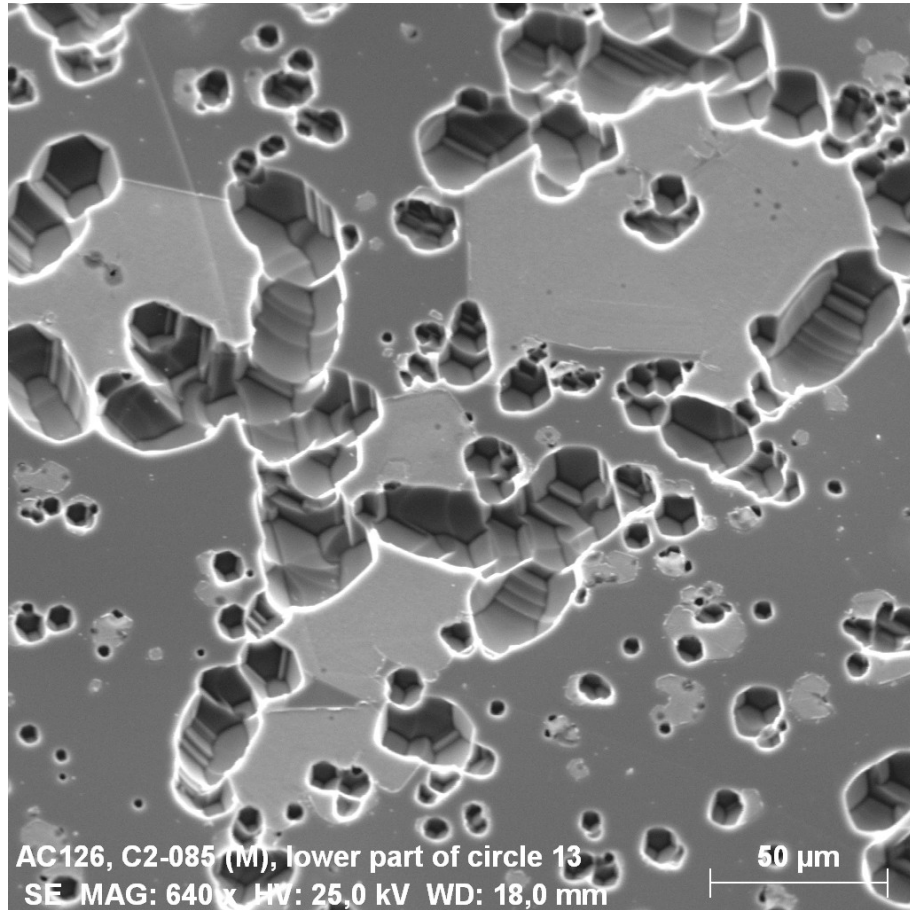


# SEM pictures of defect





# SEM pictures of defect



- Optical inspection system in very good use
- Correlations between optical inspection and limiting quench spots
- Cutting of cavities gave valuable information
  
- Automation of optical inspection for high throughput
  - **L. Steder's talk**
- Automation of defect recognition
  - **M. Wenskat's talk**