

# Contrast layers at sub-surface: diamond turned Cu vs annealed Cu

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Breakdown meeting, 03/09/2013

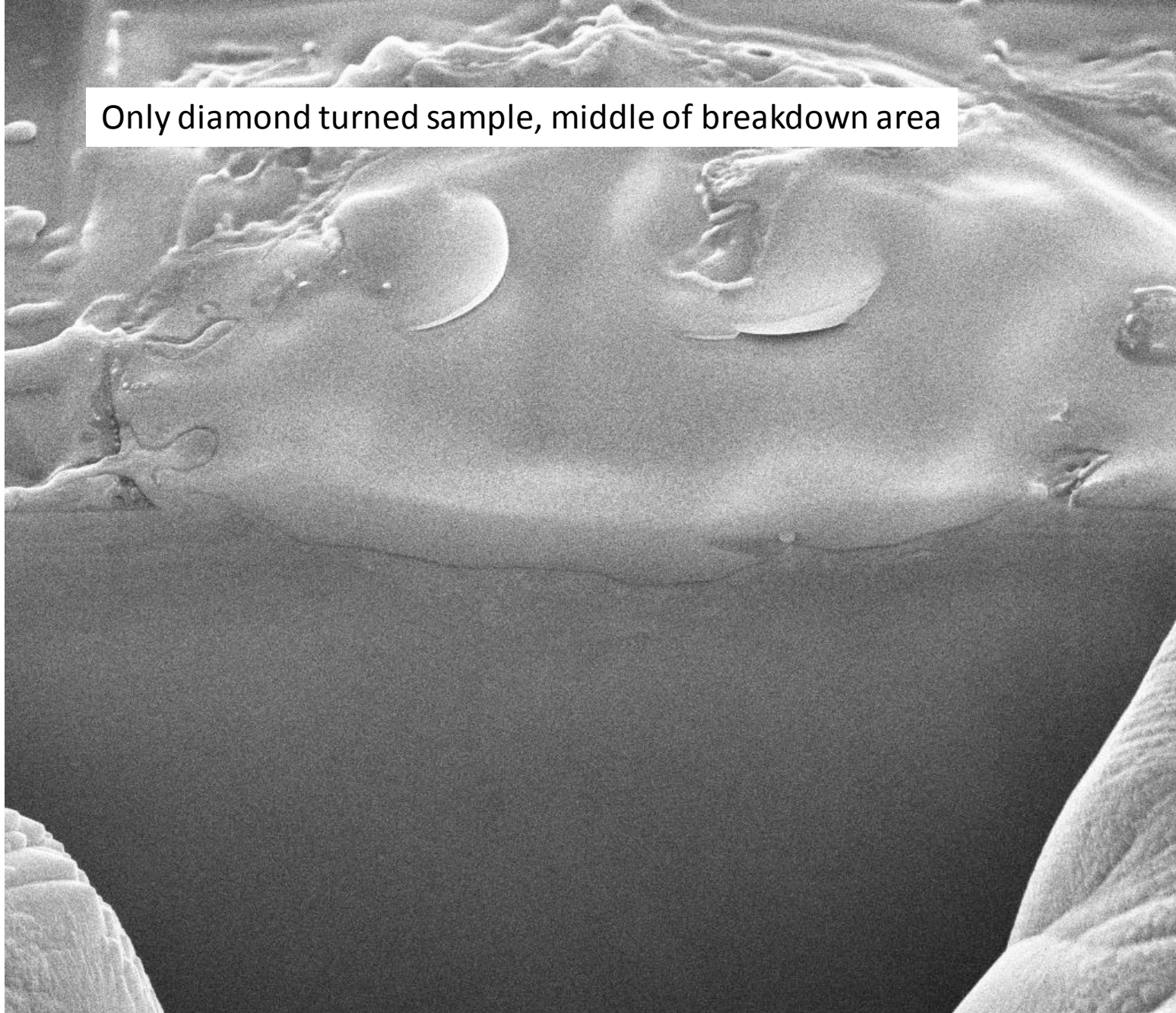
Only diamond turned sample, pristine surface

Thick Pt deposited by Ga ion

Thin Pt deposited by electron

E-Beam	Mag	Det	FWD	08/24/11	Spot	HFW	1 $\mu$ m
15.0 kV	35.0 kX	TLD-S	4.988	17:39:39	3	8.69 $\mu$ m	

Only diamond turned sample, middle of breakdown area



E-Beam	Mag	Det	FWD	08/24/11	Spot	HFW	1 μm
15.0 kV	35.0 kX	TLD-S	5.011	12:32:52	3	8.69 μm	



Annealed in vacuum sample (without etching),  
around a grain boundary

← Pt deposited by Ga ion

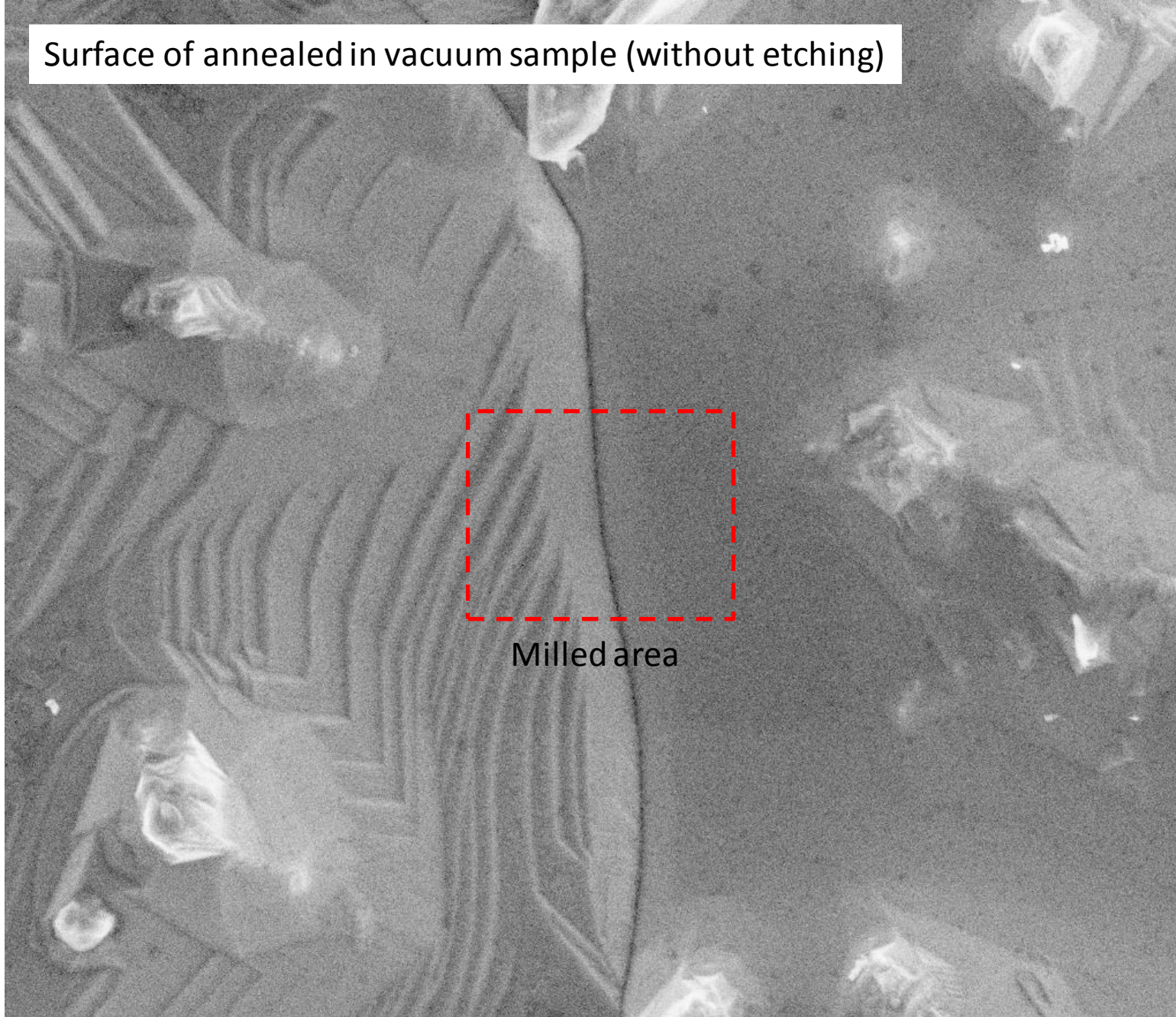
Pt deposited by electron

Due to misalignment of the system,  
some part of Cu are remained.  
Rectangular milling couldn't be  
completed in this case.

E-Beam	Mag	Det	FWD	02/03/12	Spot	HFV	500 nm
15.0 kV	80.0 kX	TLD-D	4.995	15:02:35	3	3.80 $\mu$ m	



Surface of annealed in vacuum sample (without etching)



Milled area

E-Beam 10.0 kV	Mag 15.0 kX	Det SED	FWD 5.017	02/03/12 10:10:20	Spot 3	HFWD 20.3 μm	 2 μm
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# Summary

- The contrast layers are seen at sub-surface area only in the diamond turned sample but not in the annealed sample.
- This may indicate a stress-relaxation effect of annealing.