

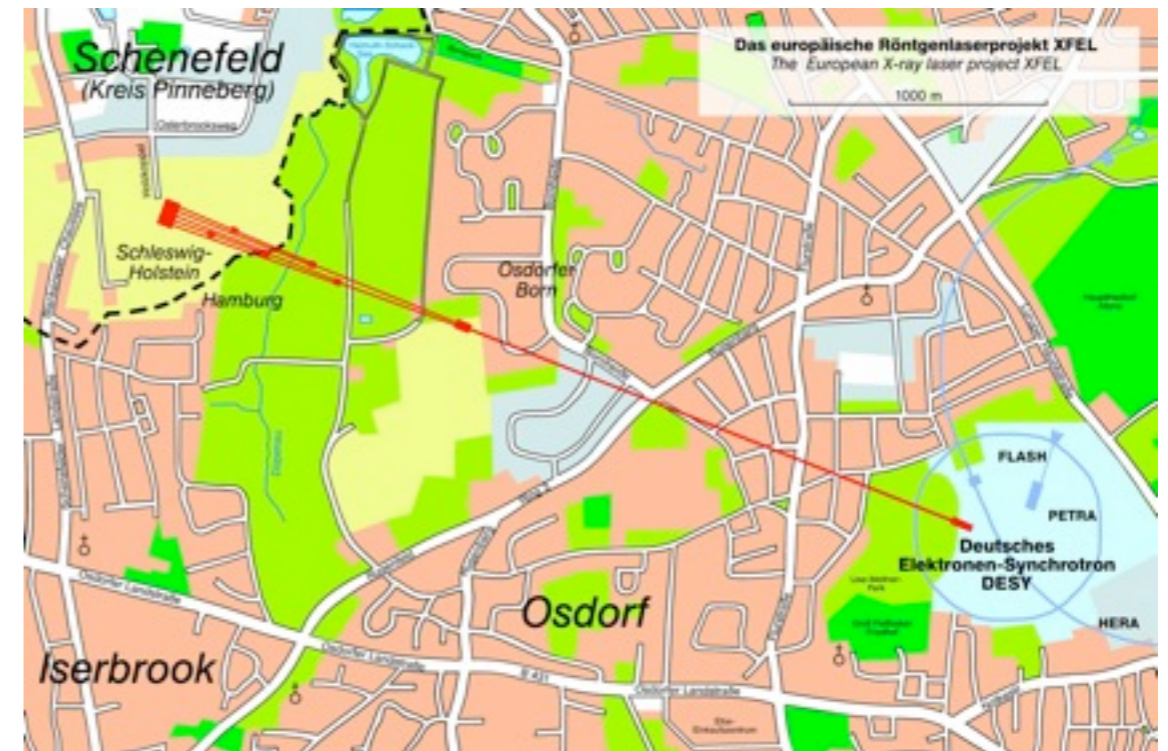
DESY / European XFEL Progress

E.Elsen



European XFEL

- X-ray FEL facility
- 1.2 km of superconducting Linac
 - Initially operating at 14 GeV
 - Full linac now supported at 17 GeV
- Full length ~3 km



Status Tunnel

- 5777 m tunnel for European XFEL
- two boring machines
 - TULA
 - 6.17 m diameter
 - 3.4 km tunnel length
 - AMELI boring the tunnel fan for the experimental stations



Tunnel boring

- main tunnel has been completed end of August 6, 2011
 - TULA dismantled at the bottom of hall and removed
- tunnel being prepared for installation of components

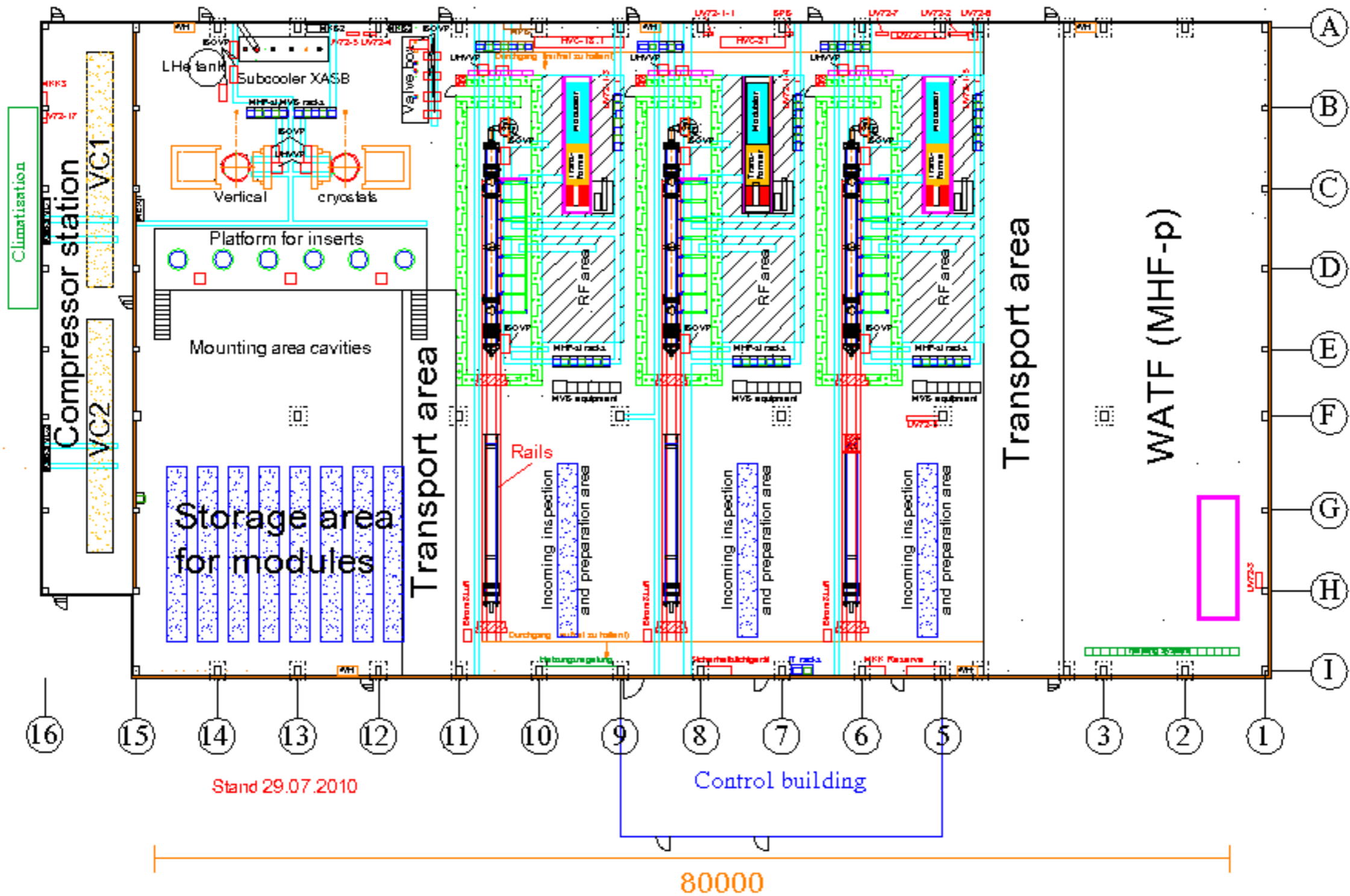


Cavity delivery

- Two times (for each vendor, i.e. RI and Zanon)
 - 4 + 4 cavities to start production
 - 280 cavities series production
 - 12 cavities ILC-HiGrade without He-vessel to allow for post - processing 600
 - 80 cavities for competitive tendering 80

 - 120 additional cavities to reach 17 GeV 120
-
- Delivery of series components to start early 2012.* 800

AMTF layout



Tools for cavity production

- Cavity tuning machines

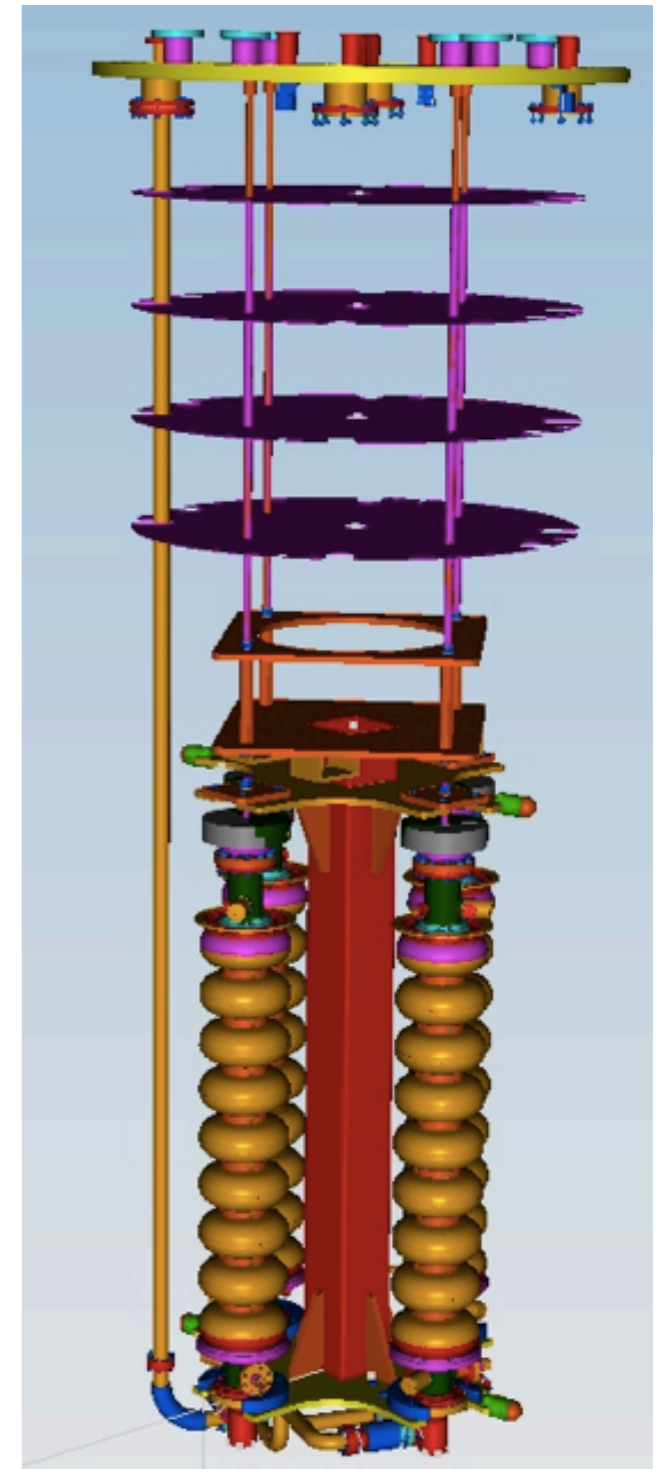
to be installed at vendor

- Half-cell measurement stand



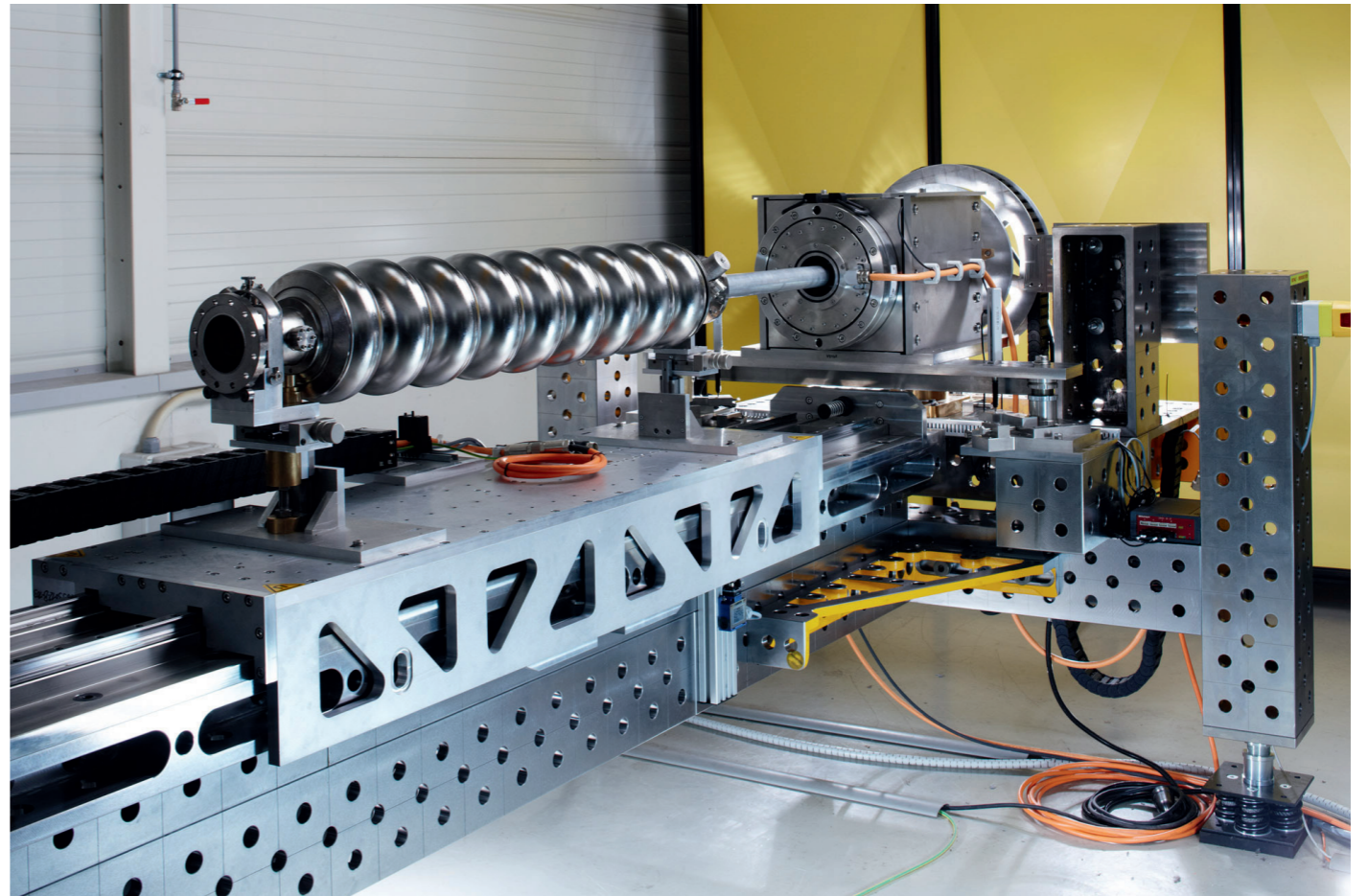
Tools and testing at DESY

- The cavities will be cold-tested in groups of using the vertical cryostats in AMTF at DESY
- Acceptance test for cavities
 - Cavities for European XFEL
 - allow for 10% post-processing
 - ILC-HiGrade cavities
 - second treatment foreseen



Tools for further examination

- Optical scanner using the KEK/Kyoto camera OBACHT
 - cartography of cavity inner surface
 - QA tool
 - assessments of cavity properties
 - vendor specifics; monitoring of e-beam welding and surface treatment
 - correlation of features with cavity properties

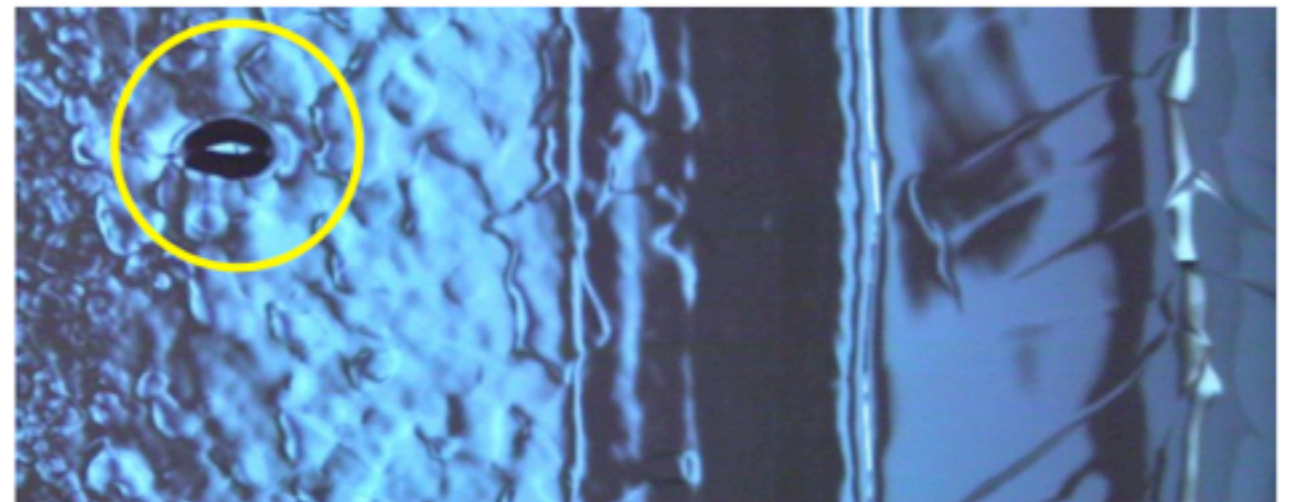
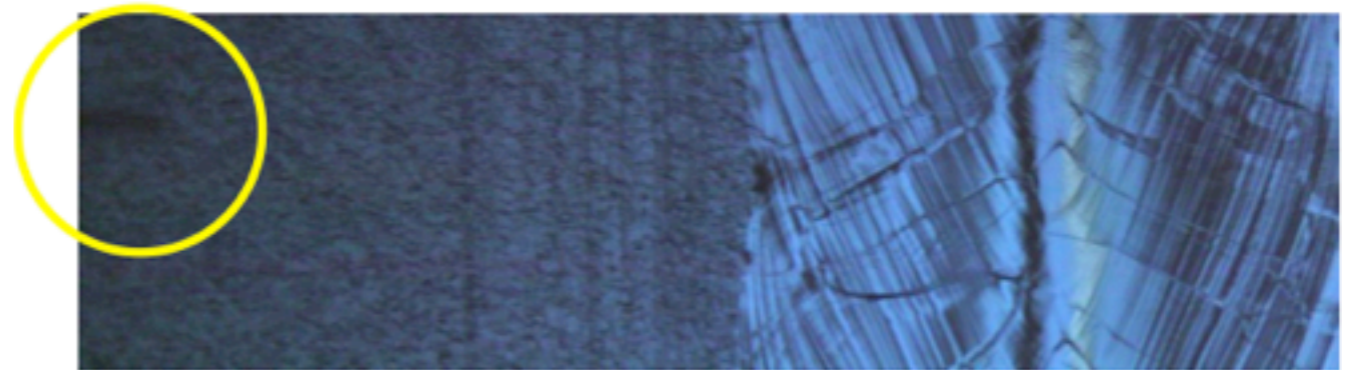


*requires automatic
feature recognition*

Towards automatic surface feature recognition

- Goals

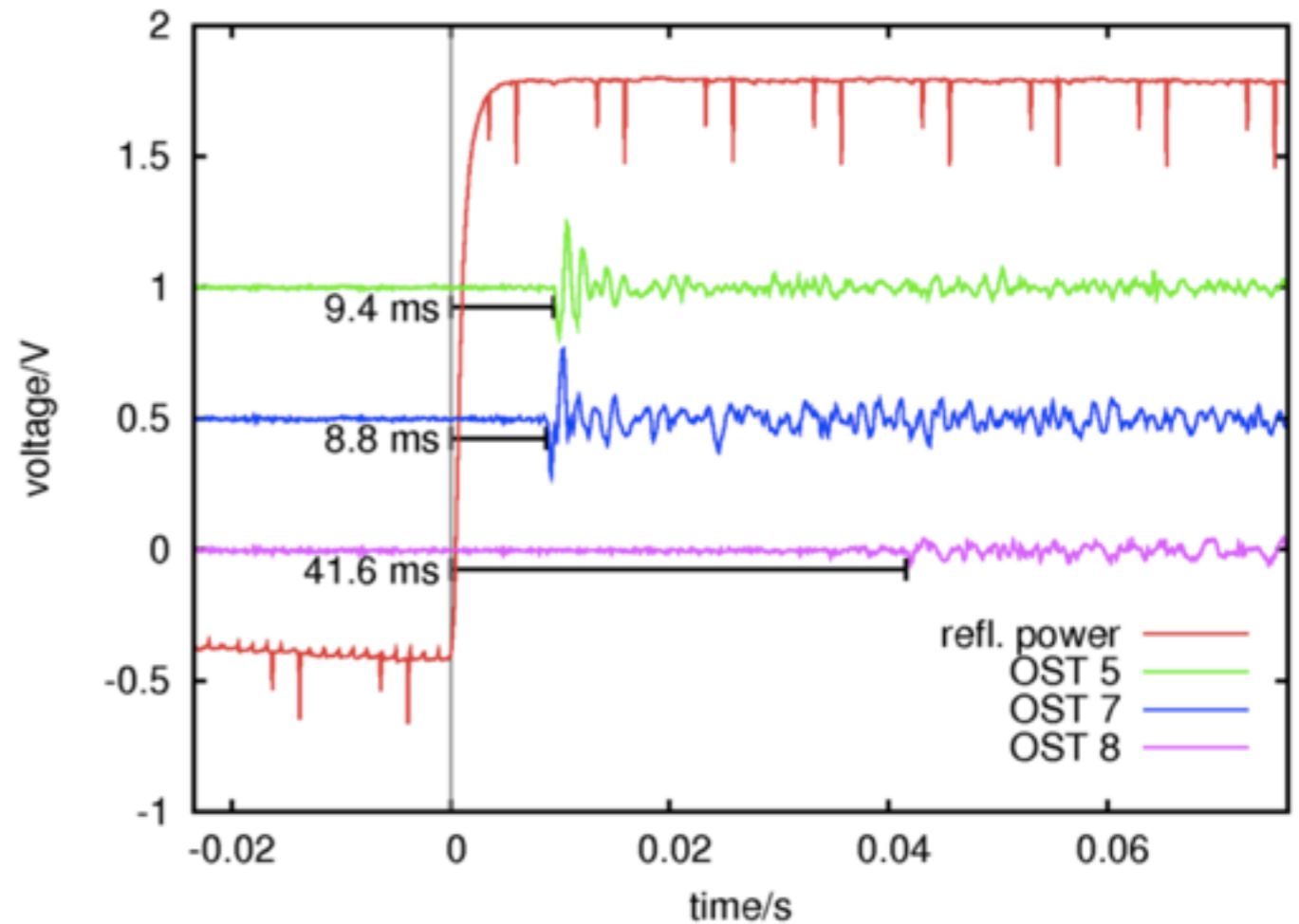
- categorize surface
 - typical feature size
 - roughness
 - shape
- identify irregularities



for status see talk by
M. Wenskat on Thursday

Tools for further examination

- Vertical cryostats in the hall 3 equipped with eight OSTs for second sound detection
- online reconstruction of quench location



Summary

- DESY is preparing for the examination of the cavities for the European XFEL
- Study will provide
 - feedback on the reliability of the production after vertical test and single treatment
 - amount and type of post-processing
 - detailed examination of 24 cavities
 - second treatment, etc.