

# Status of qualification disk fabrication

T. Niinikoski, on behalf of Jukka Paro  
(VTT Finland) and Juha Väyrynen (Ultra  
Precision Unit, North Karelia University  
of Applied Sciences, Joensuu, Finland)

# Outline

- Action decided in the meeting of 22.3. 2011
- Status of disk fabrication in PKAMK
- Follow-up plans

# MeChanICs meeting 22.3. 2011

- The main action taken at the meeting was to undertake the fabrication of the qualifying disk by VTT (J. Paro). This should take advantage of the existing Moore machine in North Karelia University of Applied Science (Juha Väyrynen). The MeChanICs project will support the work and participate in the fabrication process by available means.
- It was also mentioned that VTT has the required microscopy and metrology facilities in-house

# Follow up in the weeks just after the meeting

- Notes and summary of this meeting –this document: (JT and TN, GR for proofreading)
- Confirm the readiness of VTT to undertake the fabrication of the qualification disk (JP) – TN will get in contact
- Send 2D drawings and 3D model from CERN to VTT (SA, LD) – done
- Send Cu for disks to VTT (address to be communicated by JP, sender LD) - TN will re-launch JP
- Qualification disk to be submitted by this summer 2011.

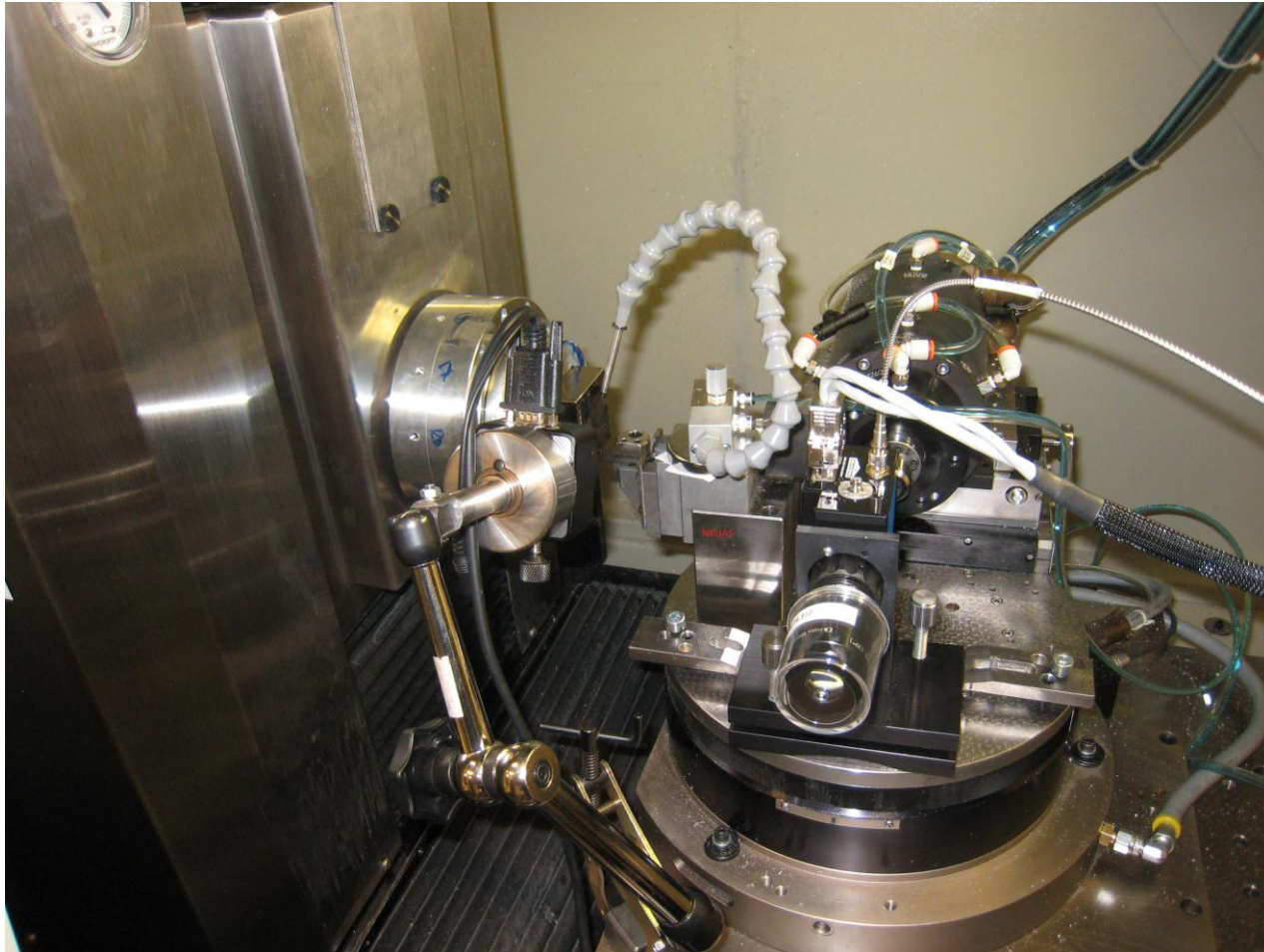
# Status of qualification disks

- The OFE Cu ingots were already available in PKAMK
- HDS11 disk drawings were submitted to VTT and PKAMK as planned
- 3 diamond tools were ordered and received in PKAMK
- 3 disks were machined by a high-speed machine tool, with 50  $\mu\text{m}$  extra material to be removed by diamond tooling
- The holes for tuning studs were not machined (a suitable machine tool was not available)

# Precision machine tool Nanotech 350 FG



# Interior of the machine



# 3 disks waiting for diamond tool finishing





# Follow-up

- Diamond tool machining will be completed in September 2011 (2 weeks of machining time is foreseen)
- JV suggests that there is no point to diamond machine all surfaces, given their treatment in the assembly and function in the accelerator
- In the follow-up after disk qualification, funding needs to be obtained for the further development of the fabrication process in Finland