

SRF performance of Tesla 1.6-cell cavity with plug photocathode

D. Kostin¹, W. Grabowski*² and J. Sekutowicz¹

¹ *Deutsches Elektronen Synchrotron (DESY),
Notkestrasse 85, 22607 Hamburg, Germany*

² *National Centre for Nuclear Research (NCBJ),
Sołtana 7, 05-400 Otwock, Poland*

Keywords: FEL, Tesla, cavity, superconducting, photocathode, plug

* e-mail: wojciech.grabowski@ncbj.gov.pl

We present results of measurements of superconducting 1.6-cell gun with photocathode placed on removable plug [1]. This photoinjector is designed for the superconducting linear particle accelerator of free electron laser POLFEL [2] and for future modification of free electron laser European XFEL.

We present measurements of quality factor performed at DESY, in comparison with baseline test performed in Jefferson Laboratory. We also indicate differences between those tests. At the end we show modification of superconducting photocathode plug designed for increasing its performance.

[1] J. Sekutowicz et al., “*Cryogenic Test of the Nb-Pb SRF Photoinjector Cavities*”, Proceedings of PAC09, Vancouver, 2010

[2] POLFEL – Project Description
http://polfel.pl/doc/polfel_booklet_en_2012_10_28-b.pdf