4th generation Specialized Synchrotron Radiation Source SSRS-4 project Diagnostic systems

Peter Fedin

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CHATC

SSRS-4 diagnostic system

- > BPM simulation and testing
- > Noninvasive beam size diagnostics for linac
 - Diffraction radiation based transverse beam size diagnostics
 - Smith-Purcell Radiation from 2D photonic crystals –
 "dotted gratings"
- > Emittance measurements



BPM. BPM signal parameters





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0.8

oltage [V]

nt [A],v

E -0.2

-0.4

-0.6 -0.8

[A],voltage [V]

BPM electronics



Beam size diagnostics



Anatoly SNIGIREV

Immanuel Kant Baltic Federal University

Kaliningrad, Russia



Immanuel Kant Baltic Federal

University









Current status of X-ray based beam size monitoring at the PT-MT beamline @Kurchatov Insitute

Immanuel Kant Baltic Federal

University

KI







Andrei GOGIN, Roman SENIN, Alexander BLAGOV, Timur KULEVOI



Immanuel Kant Baltic Federal University

Source size measurements ID11@ESRF





CRL imaging (34 keV)



By resolving of an inverse problem of X-Ray beam diffraction was calculated <u>source</u> <u>size=15 mm</u>



Measured focal spot FWHM=21.3 mm Distance from source to CRL=37m Imaging distance=58m Source size=21.3*37/58=13.57 mm

