

Task 7

Superconducting RF Gun at ELBE

7.1 Installation of an energy spectrometer in the ELBE beam line for slice diagnostics and slice emittance measurements for different emittance compensation schemes.

7.2 Design, built and test the set-up for preparation and application of GaAs photo cathodes in the SRF-Gun.

7.3 Evaluation of critical R&D issues of SRF guns like photocathode compatibility, advanced emittance compensation and application as a high-brightness polarized electron source.



Sub-task 1: Slice diagnostics

Thorsten Kamps (HZB)

First beam of 2. operating SRF Gun @ HZB

Jeniffa Rudolph (HZB) Highlight talk at 2011 Annual Meeting

“Slice emittance measurements at the ELBE superconducting RF photoinjector”

Sub-task 2: GaAs photo-cathodes

Rong Xiang (HZDR)

Sub-task 3: Evaluation of critical Issues of SRFguns

Jochen Teichert (HZDR)

Milestones and Deliveries

milestone	topic	month	status
M10.7.1	preparation system for GaAs ready	12	ok
M10.7.2	installation of dipole magnet	18	ok
M10.7.3	GaAs photo cathodes produced	24	->36

deliverable	topic	month	status
D10.7.1	results of slice measurements	24	ready after DIPAC
D10.7.2	results for GaAs photo cathodes	33	->45

Some problems:

7.1: spectrometer installation & position

- first in dispersive section, not suitable
- in Oct. 2010 in straight section, optimal for measurements, beam loss in small vacuum chamber?
- on place and available for further measurements

7.2: GaAs topic

has delay due to man power problems since March 2011 Rong Xiang has a contract, working till end of project or longer, progress expected

7.3: Laser upgrade (MBI, 13 MHz, Pulse trains) has delay

commissioning now June/July 2011

First run 2011: test with pulsed operation using a mechanical shutter for the laser beam

lower average current needed for diagnostics

