

9mA Collaboration

Next Steps

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Past focus: FLASH programme

- Focus: Long bunch trains with high beam loading
 - ILC-like beams: ideally 6mA and 9mA
 - Long-term stability close to operational limits (i.e. quench)
 - Routine operation under these conditions (automation)
 - Pk-QI tuning for “flat gradients”
 - Required operational klystron margin
- Programme driven by ILC/GDE
 - But clearly strong synergy with XFEL and FLASH

*Did we achieve all
out goals? What
work is still to do?*

ILC driven programme

- Newly formed LCC Directorate has requested us to develop (evaluate?) the scope of further SRF beam test experiments
- Specifically:
 - Develop a post-GDE experimental programme that we can propose for FLASH
 - Look beyond FLASH to experiments at (for example) STF2 at KEK and NML at FNAL

Towards a new FLASH programme

- Answer to first question: No
- Failed to achieve 6mA operation during last run
- Would like to explore possibilities for higher currents
 - ideally up to 9mA
- Further development of controls software/automation
- Quantifying stability close to quench limits under these conditions
- How can we make good use of uTCA benefits?

Did we achieve all out goals? What work is still to do?

Can we start to put together a coherent and well-defined set of experiments for FLASH?

FLASH programme caveats

- Original 9mA programme well supported by DESY management
- However, no guarantee for beam-time requests in the future
 - We will need to make a good case. International participation certainly helps! Peer-reviewed publications help!
- If our focus is higher currents ($\geq 6\text{mA}$) then we must understand technical limits at FLASH
 - subject of future talk at this forum
- Our first goals: establish the interest and then develop a proposal

Beyond FLASH

- With ILC in mind, would certainly include experiments at STF2@KEK within this collaboration (2016?) and at NML (20??)
- Broaden scope / interest to include
 - RF testing only at (for example) CMTB @ DESY
 - Include aspects of CW operation (LCLS2, ERLs, XFEL future...)
- How do we want to include these topics? What is the specific interest?
 - Note we believe this collaboration should be focused on – but not necessarily limited to – experimental programmes

For this meeting

- Report on status from our collaborators and understand the key interests
- Begin to prepare a new bid for a FLASH-based programme
 - What should the scope be?
 - Who is interested in participating (funding permitting)
 - Answering the LCC's request
- Understand how best to use these meetings
 - And include the additional scope proposed.