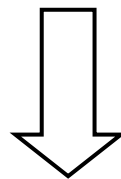


# Layout of the Machine

- Layout of the 250 MeV accelerator
  - layout as defined for the CDR (reference)
  - working layout as going to be installed in WLHA
  
- Layout of the 6 GeV X-FEL
  - Gross design (building layout) exists but no fine-tuning (presently best described in FEL-BR06-014-CANDLE-Specs.pdf)



collaboration with CANDLE to make specifications

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     • 1 MV pulser  
 ▶ Project Plan  
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 ▶ Simulations  
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 ▶ Seminars  
 ▶ Publications  
 ▶ Internal Reports  
 ▶ Literature & Links  
 ! Restricted access ([info](#)).

**250 MeV Injector Parameter Pages**

**Most up-to-date version**

- [Uniform laser-pulse on cathode, 1 MV pulser technology](#)

**Reference for CDR**

- Temporal ongitudinal profile:
  - Rectangular
  - based on [500 kV](#) pulser technology
  - based on [1 MeV](#) pulser technology
  - based on 1 MeV pulser technology with [mis-alignet elements](#) (test study only)

running design

reference

Last modified: 29-Nov-2007 21:58 – Contact: [René Bakker](#)

[\\FS02\0600\FEL\W\CDR\FEL-BR06-014-CANDLE-Specs.pdf](#)



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**Simulations**

**Quick links**

Repositories:

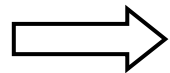
- [simulation codes and field mappings](#).
- [user area](#) for reference simulation results.

Parameter and simulation pages:

- [500 kV setup in OBLA](#).
- 250 MeV injector
  - [Parameters](#)
  - [Impact-t simulation results](#)
- [Impact-t gun simulations](#)

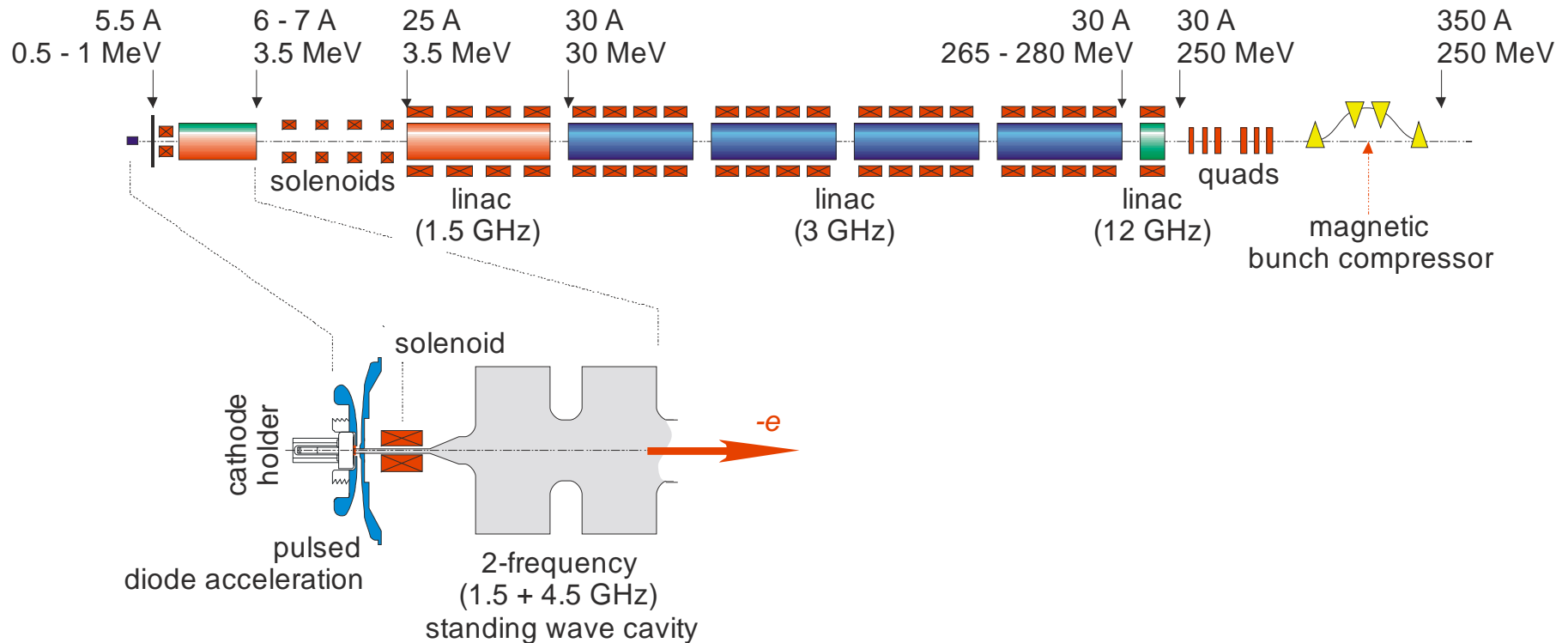
Other:

- the PSI FEL [naming convention](#).
- database browser (not yet available).



# 250 MeV Layout CDR

bunch charge: 200 pC



Field mappings:

- <file:///afs/psi.ch/projects/fel/devices>
- <file:///afs/psi.ch/projects/fel/svn/source/devices>, or
- <http://svn.psi.ch/websvn>

CDR assumes  
field-mappings, status April 2007

WebSVN - fel/source - Rev 169 - /devices/ - Opera

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100% http://svn.psi.ch/websvn/listing.php?repname=fel/source&path ? Google

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## fel/source

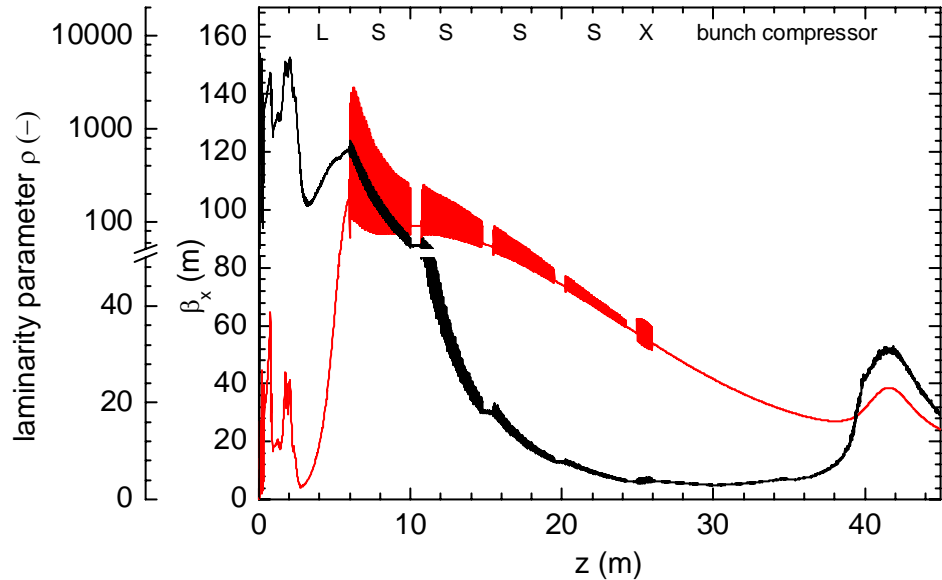
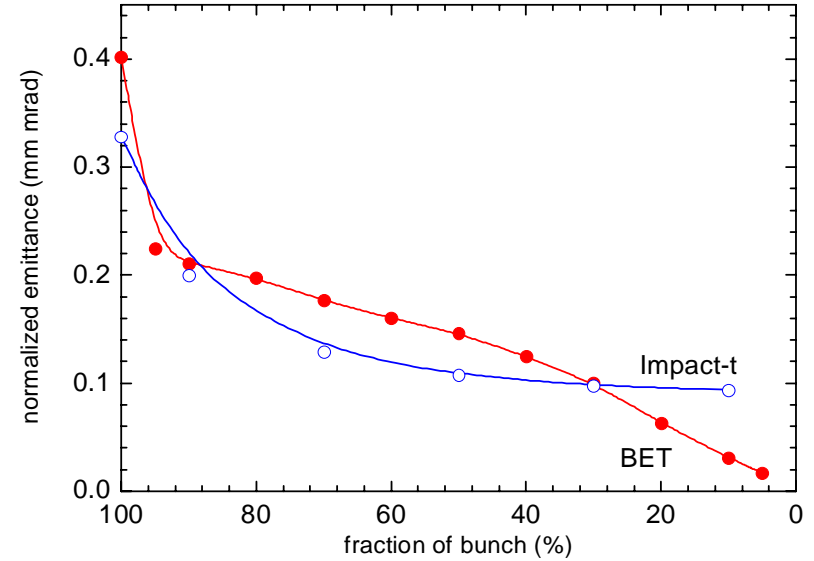
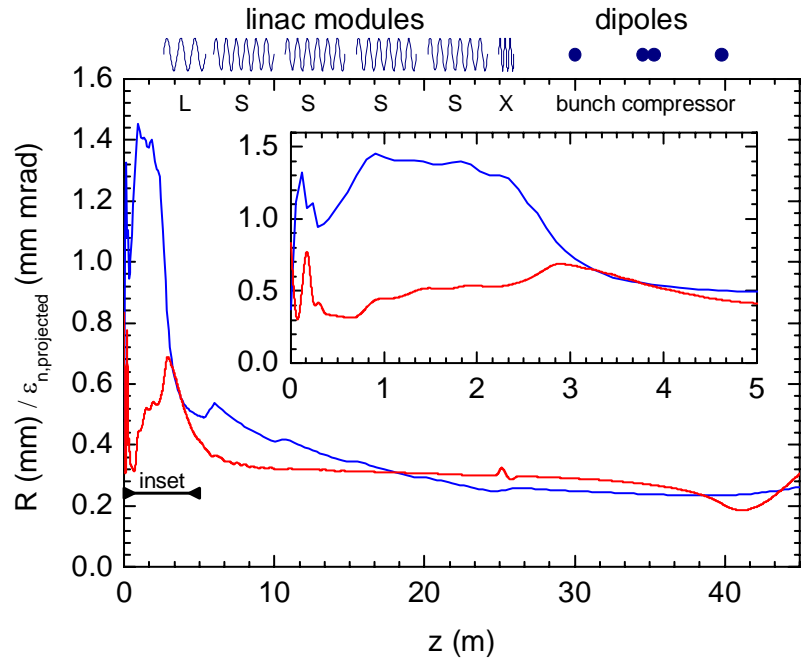
fel/source Go

### Revision Information

Current Directory:	/devices/
Rev:	169
Author:	bakker
Last modification:	Rev 160 - 2007-11-28 19:16:06 +0100 (Wed, 28 Nov 2007)
Log message:	Updated to V. Oct.-2007 ( <a href="#">Show changed files</a> )

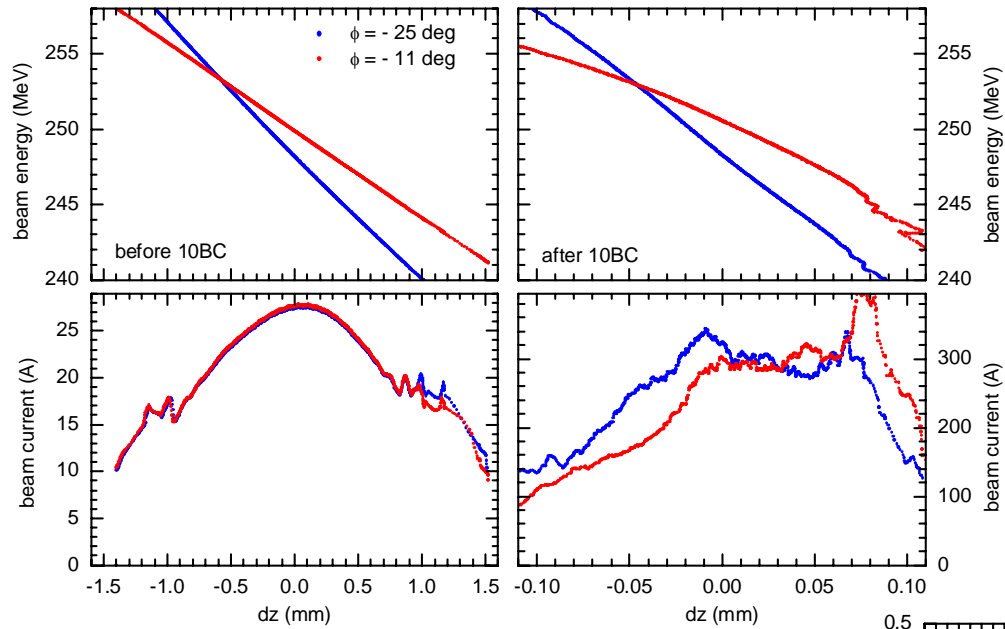
[/] [devices/] - View Log - Compare with Previous - [XML](#)

Path	Log	RSS feed
<input type="checkbox"/> bet/	<a href="#">View Log</a>	<a href="#">XML</a>
<input type="checkbox"/> <b>devices/</b>	<a href="#">View Log</a>	<a href="#">XML</a>
<input type="checkbox"/> INEG-ECAT/	<a href="#">View Log</a>	<a href="#">XML</a>
<input type="checkbox"/> INEG-MSL10/	<a href="#">View Log</a>	<a href="#">XML</a>
<input type="checkbox"/> INLB-01-MSL/	<a href="#">View Log</a>	<a href="#">XML</a>
<input type="checkbox"/> INLB-01-RAC/	<a href="#">View Log</a>	<a href="#">XML</a>
<input type="checkbox"/> INLB-02-MSLAC/	<a href="#">View Log</a>	<a href="#">XML</a>
<input type="checkbox"/> INLB-02-RAC/	<a href="#">View Log</a>	<a href="#">XML</a>
<input type="checkbox"/> INSB-MSLAC/	<a href="#">View Log</a>	<a href="#">XML</a>
<input type="checkbox"/> INSB-RAC/	<a href="#">View Log</a>	<a href="#">XML</a>
<input type="checkbox"/> INXB-RAC/	<a href="#">View Log</a>	<a href="#">XML</a>
<input type="checkbox"/> genesis/	<a href="#">View Log</a>	<a href="#">XML</a>

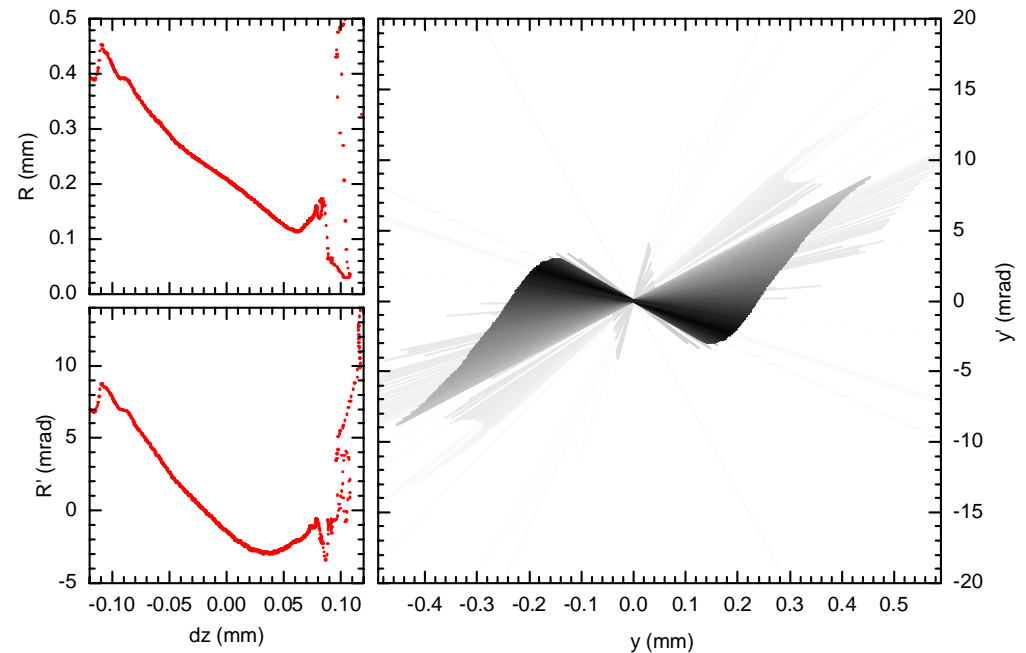


## 250 MeV Layout CDR

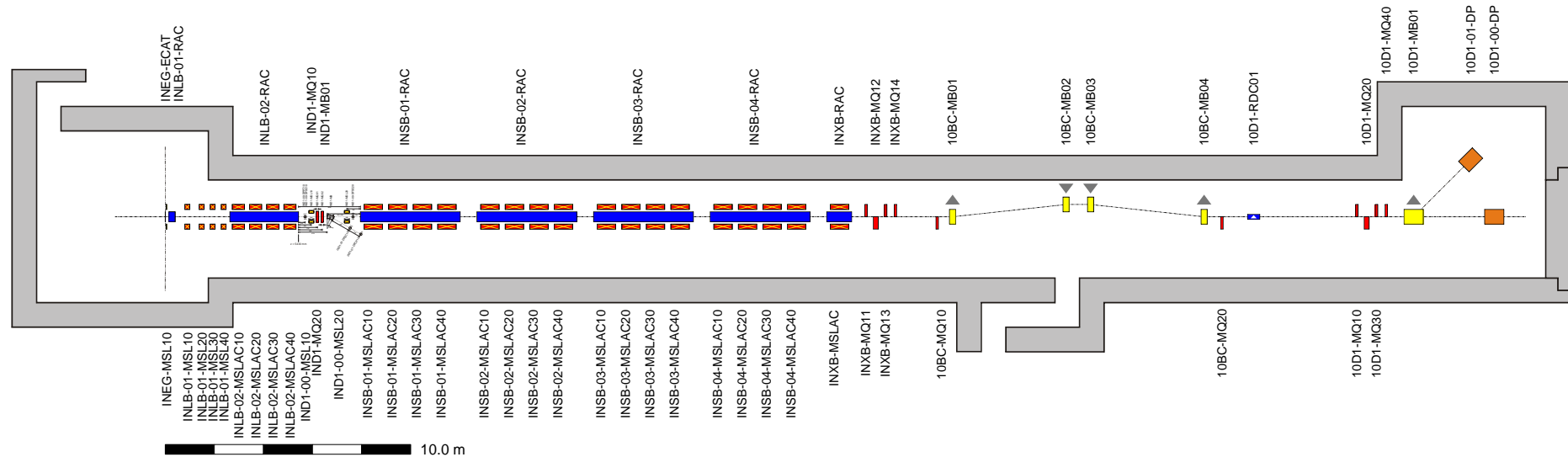
- beam parameters
- results impact-t / BET / Homdyn



- Result BET
- Results with impact-t on the AMAS web-page



# Layout 250 MeV (running)



## Changes:

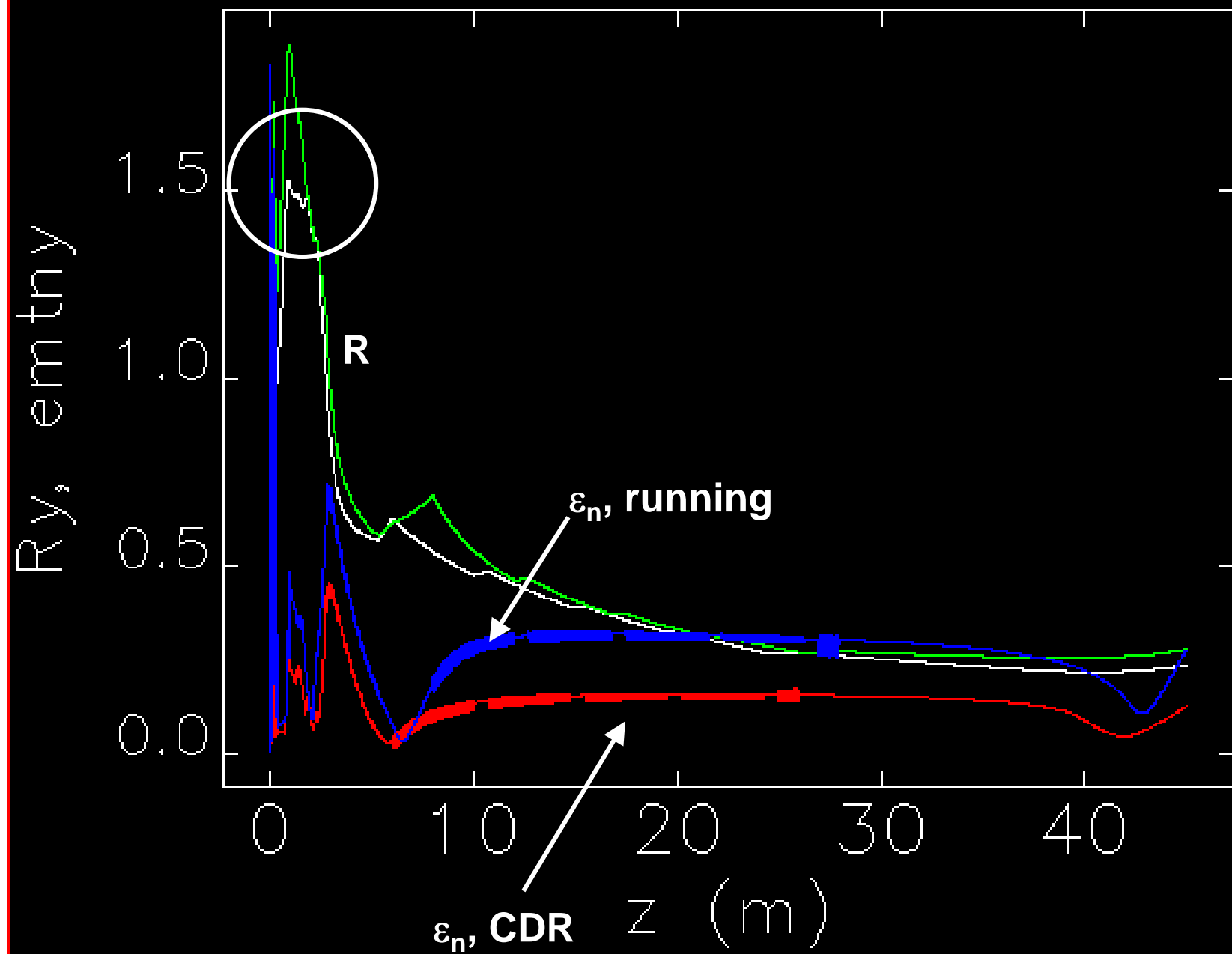
- Anode/cathode configuration
- Field mappings 2-cell 2-frequency cavity
- Diagnostic section at 30 MeV
- Everything downstream of the X-band cavity

BET as  
reference model



# Open Issues

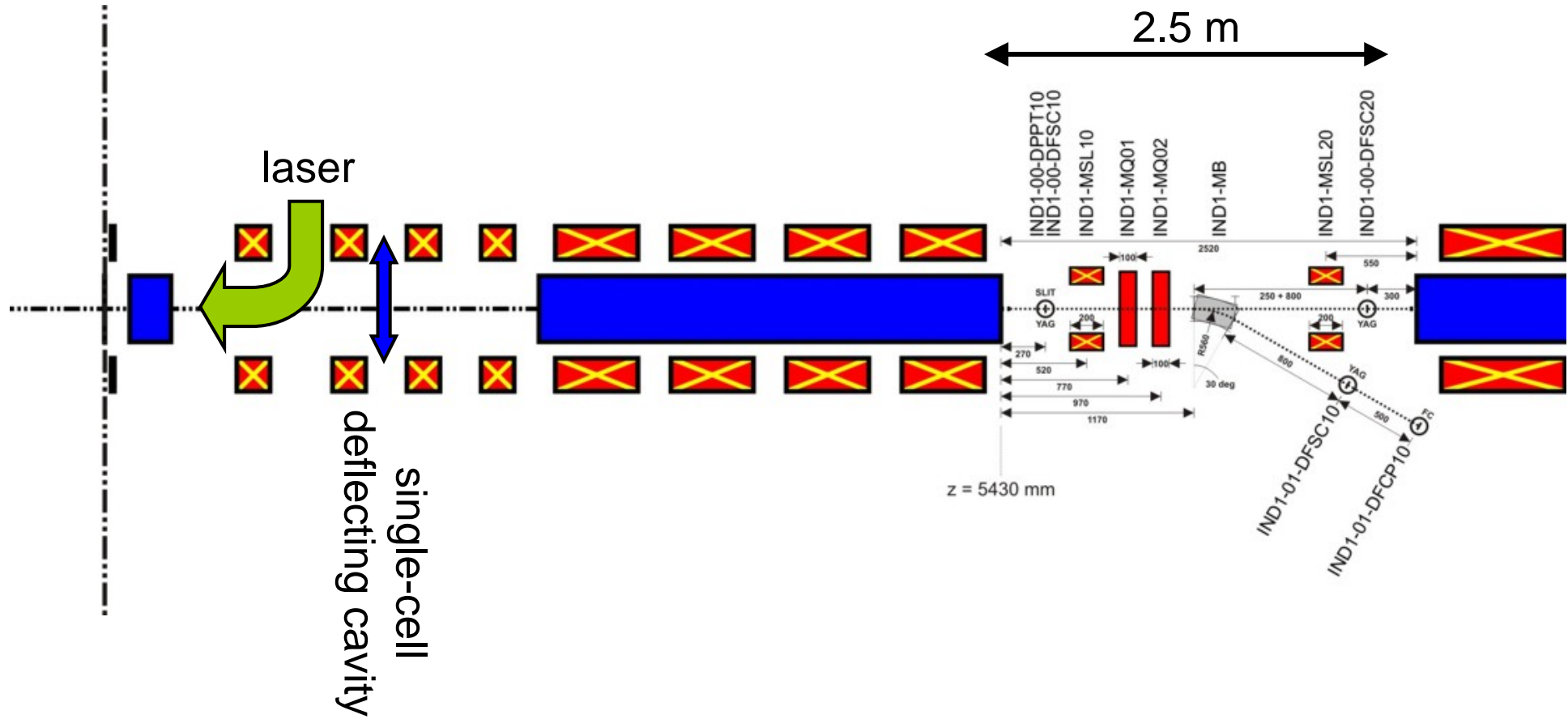
- Anode / cathode geometry is sub-optimal for a good performance of the 250 MeV linac → optimization



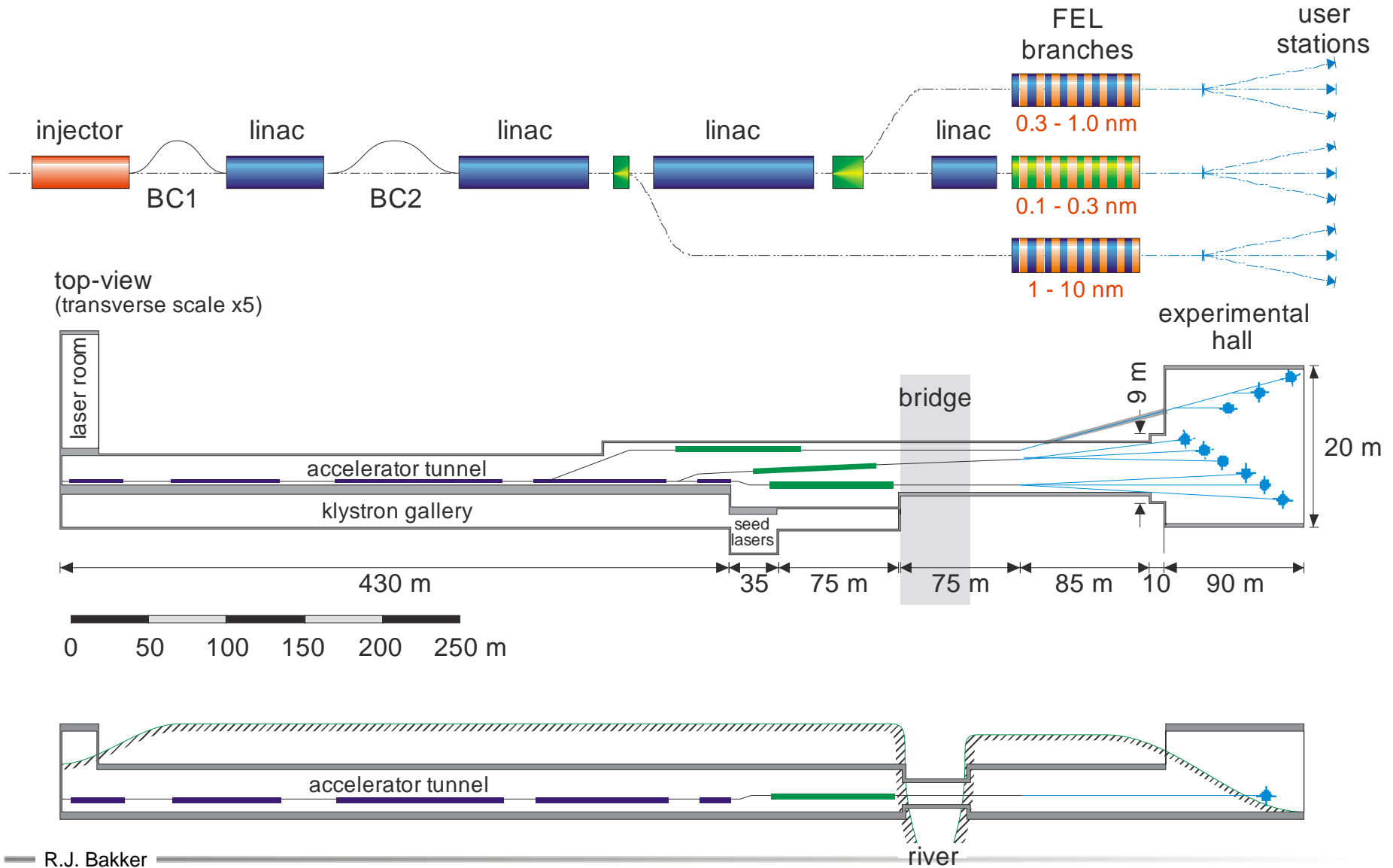
# Open Issues

- Anode / cathode geometry is sub-optimal for a good performance of the 250 MeV linac → optimization
- Sub-optimal field-gradient of the 4.5 GHz field
- Performance analyses of the 30 MeV diagnostic section  
- time resolved diagnostics ?
- Layout and performance analyses of the 250 MeV diagnostic section

# 30 MeV Diagnostic Section



# XFEL Design (CANDLE)



# XFEL Design (CANDLE)

