Shadowing of SMH16 by the dummy septum

Dummy septum meeting on 07/06/2012

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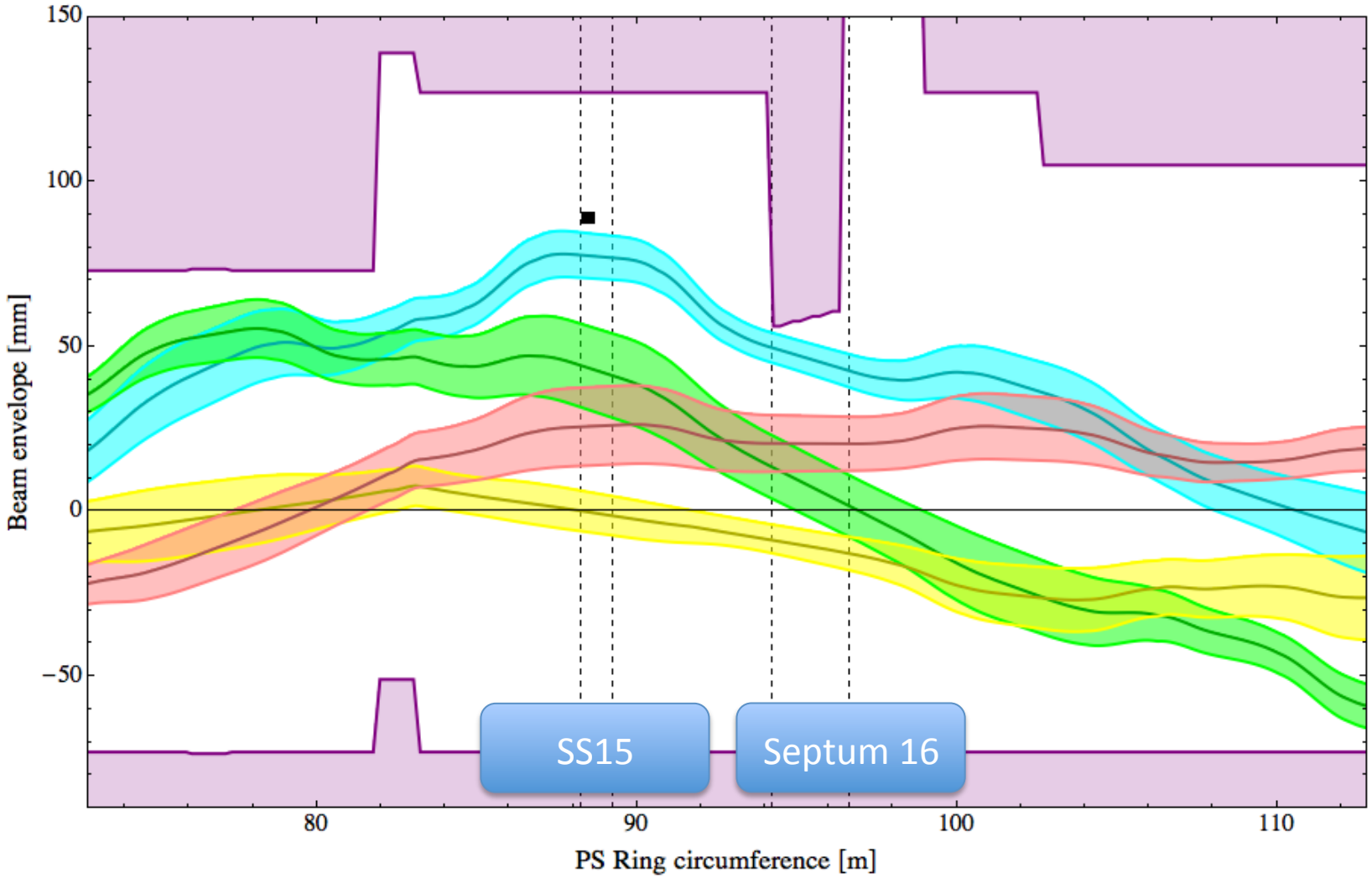
Acknowledgments: M. Giovannozzi

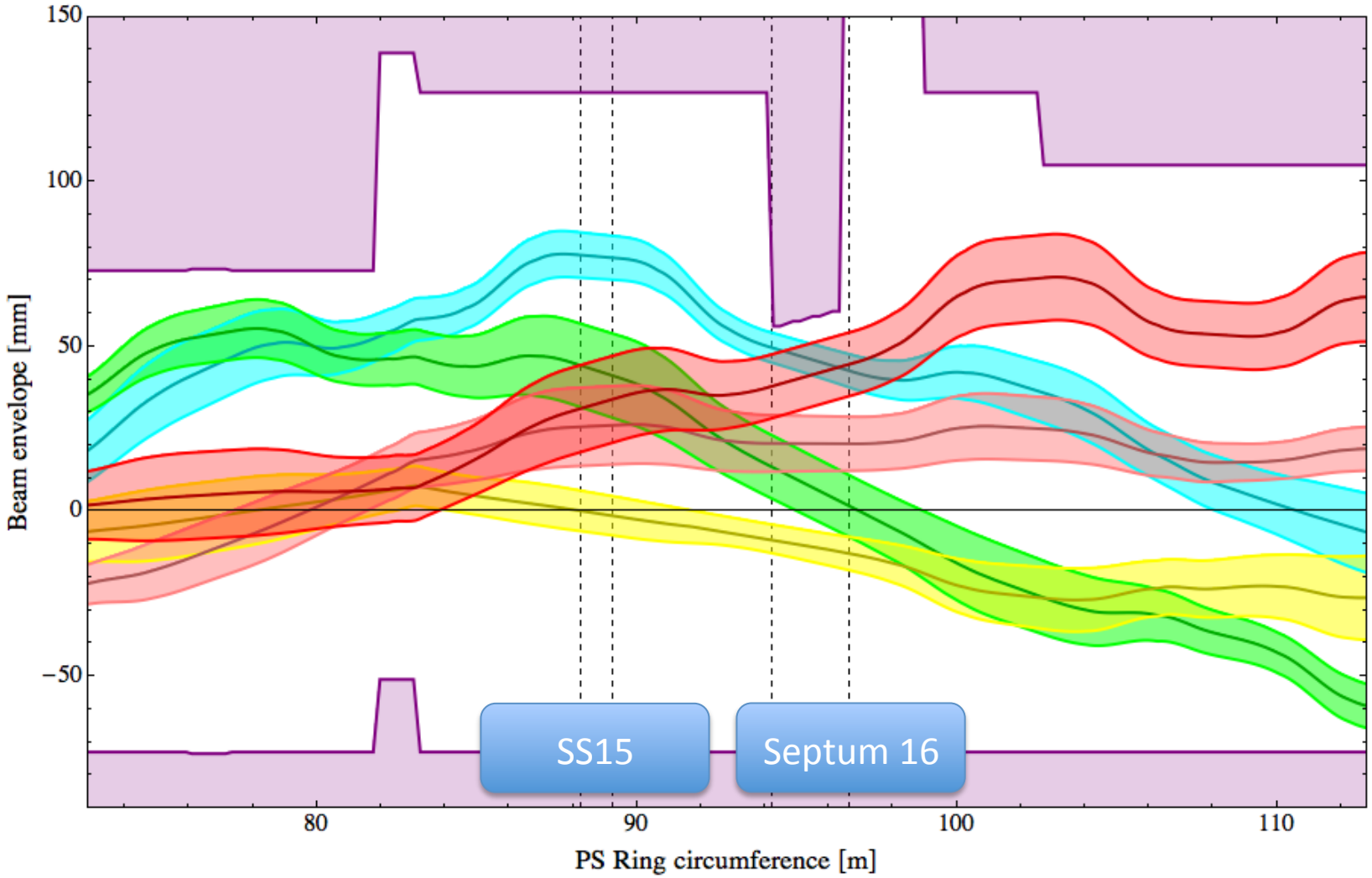
Overview

1. Review the "geometry" in SS15 and SS16 as imposed by the beams
2. Shadowing of SMH16 by the dummy septum during the rise time of the kickers
3. Constrained positioning of the dummy septum

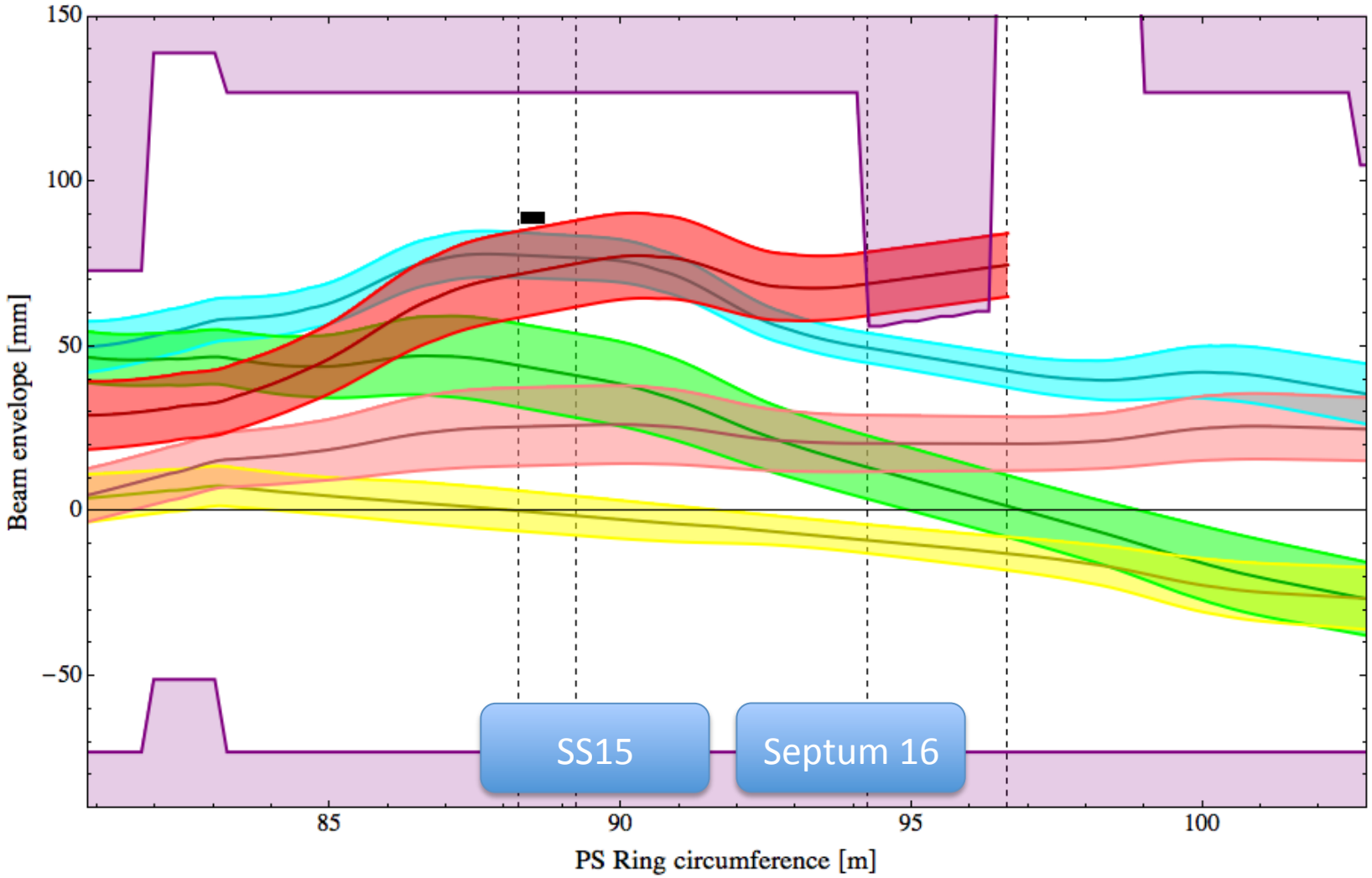
Slow bump (MTE)



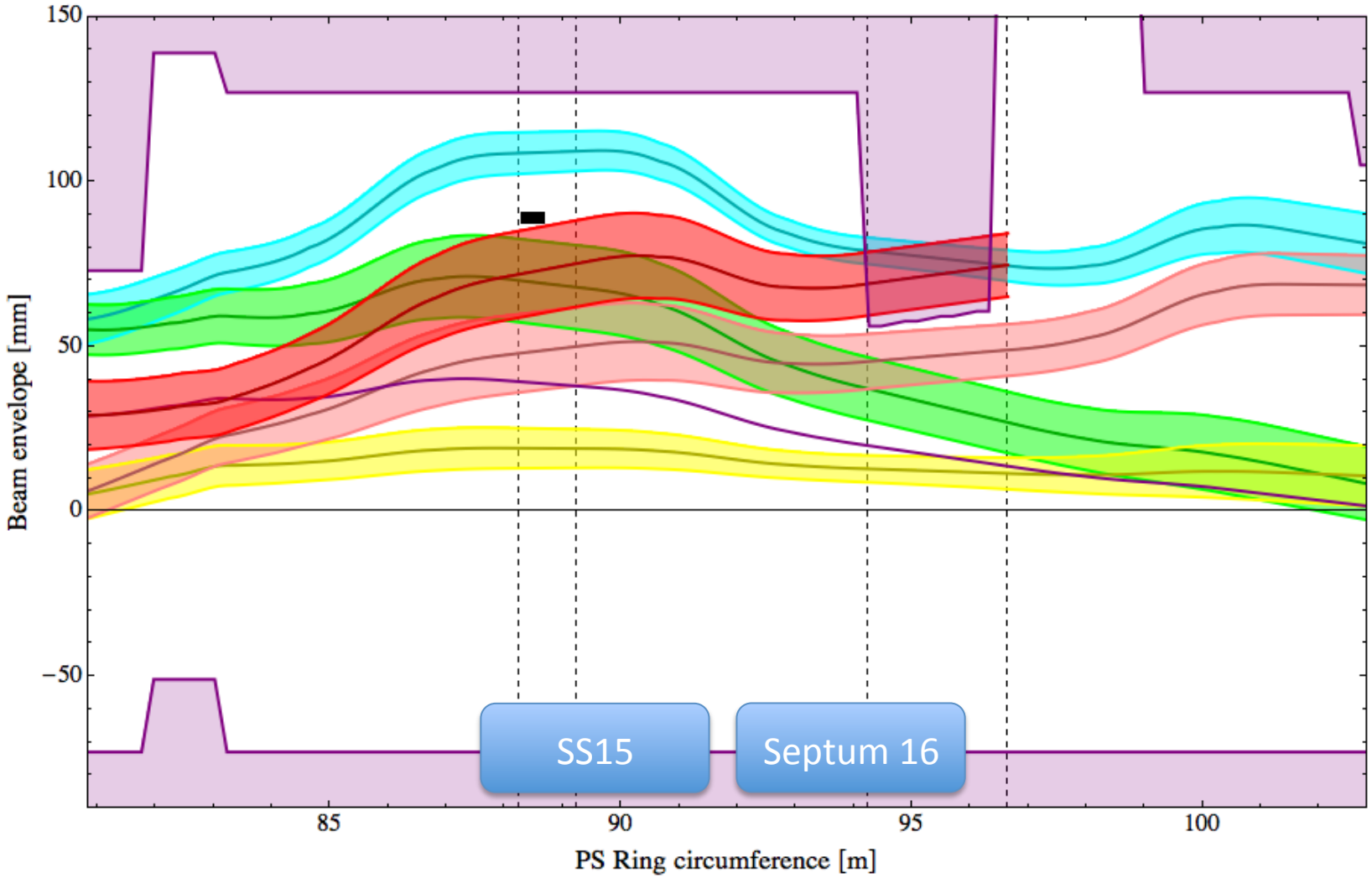
Slow bump (MTE and TOF)



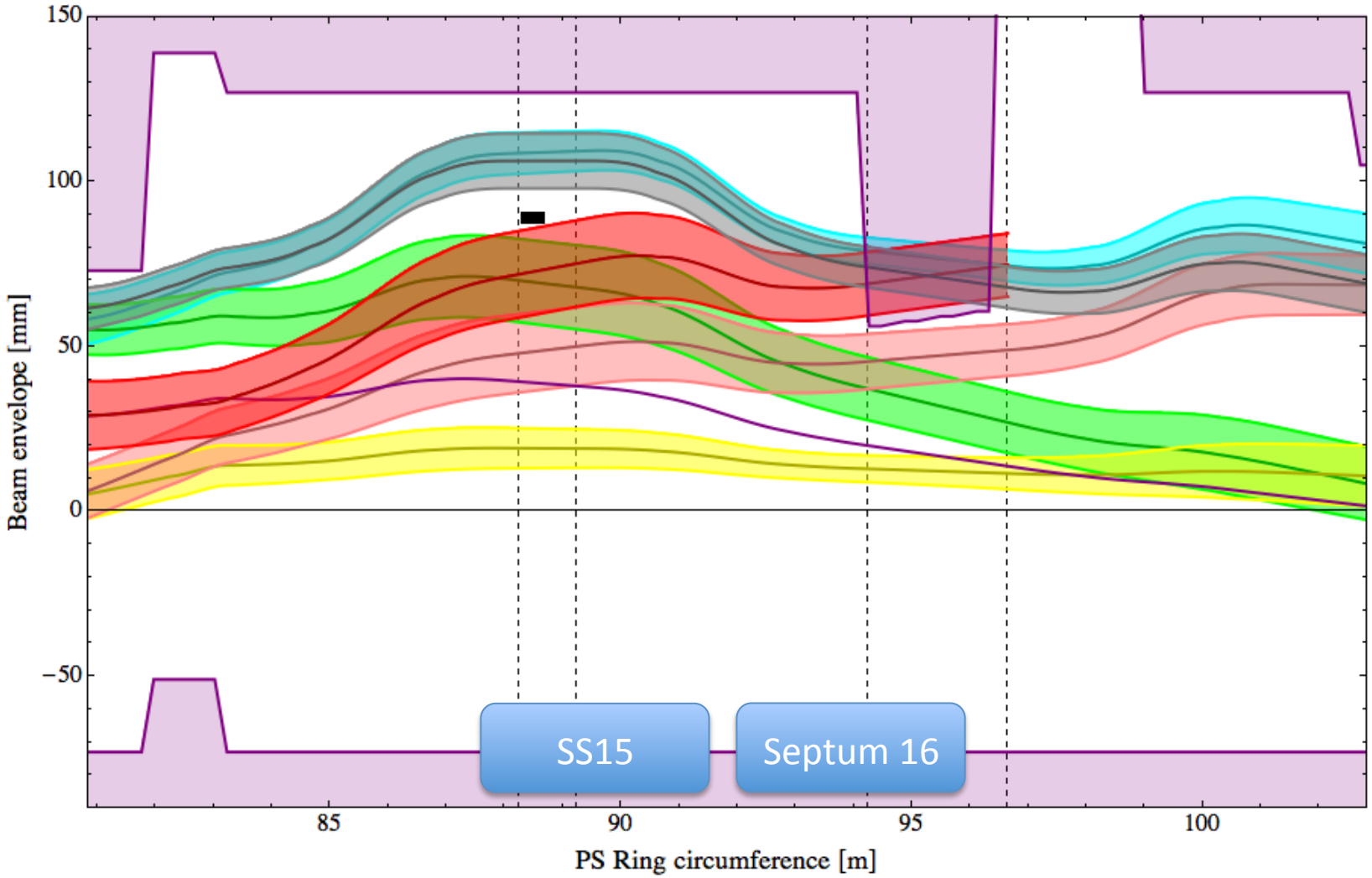
Slow bump MTE and kicked TOF



Fast bump (MTE) and kicked TOF



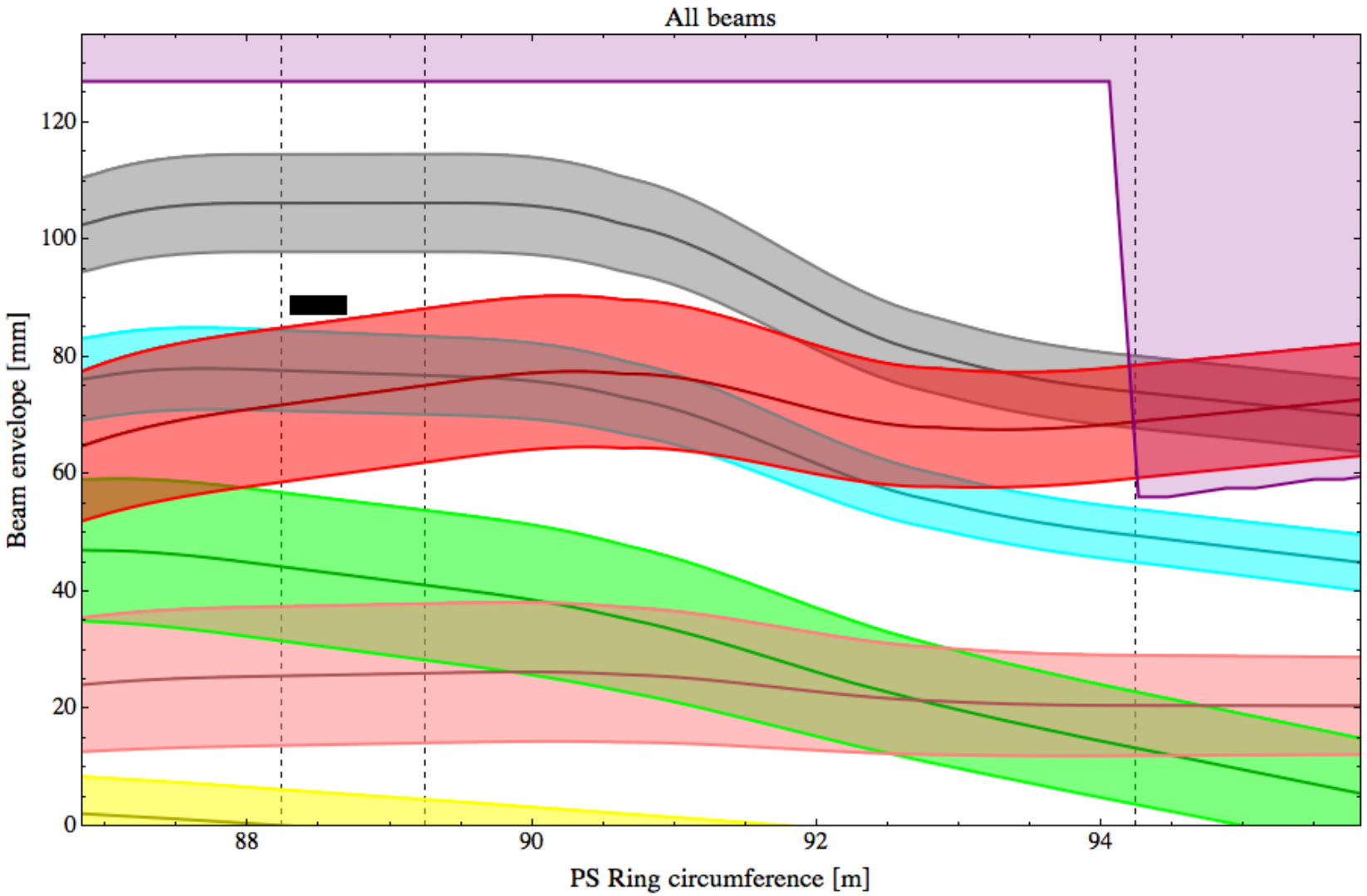
Fast bump (MTE) and kicked TOF



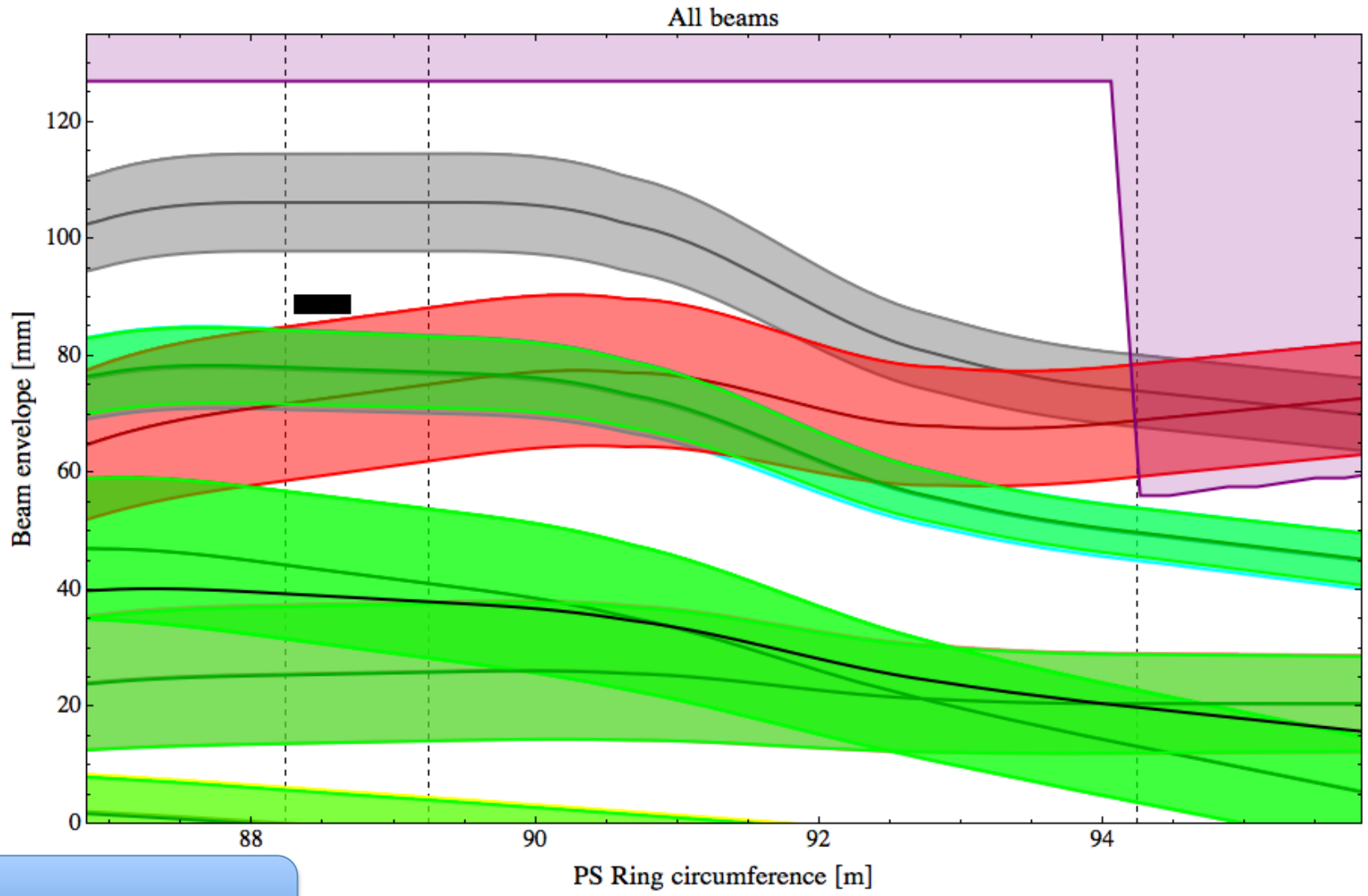
Available space in SS15

- Free space for the dummy septum limited by
  - Trajectory of the kicked TOF beam
  - Aperture in SS14
  - Slow bump of MTE as high as possible
- For the other beams (TOF, AD, LHC) positioning the dummy septum as high as possible would be better
- But… is there any shadowing possible ?

Rise of the fast bump

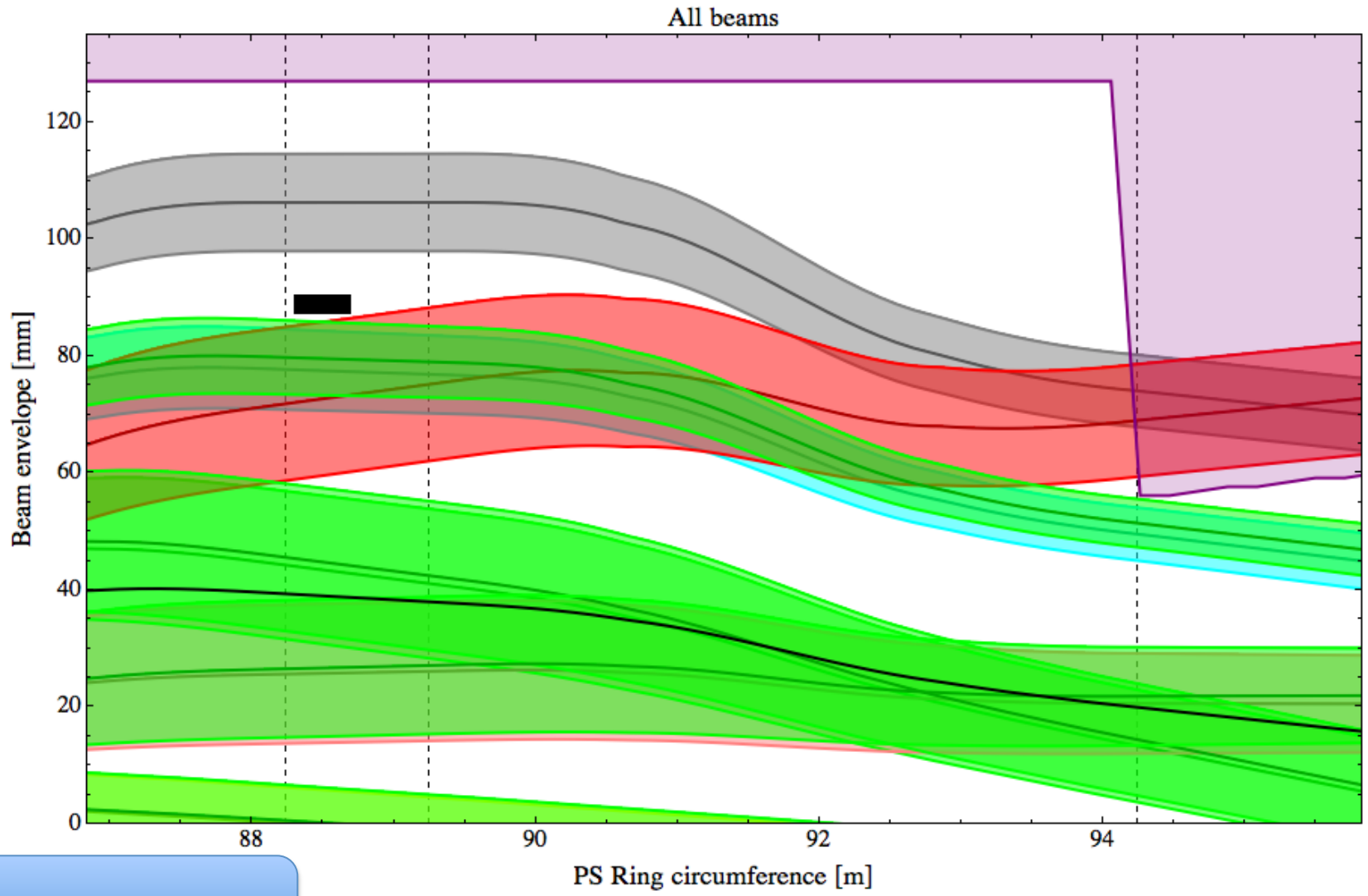


Rise of the fast bump



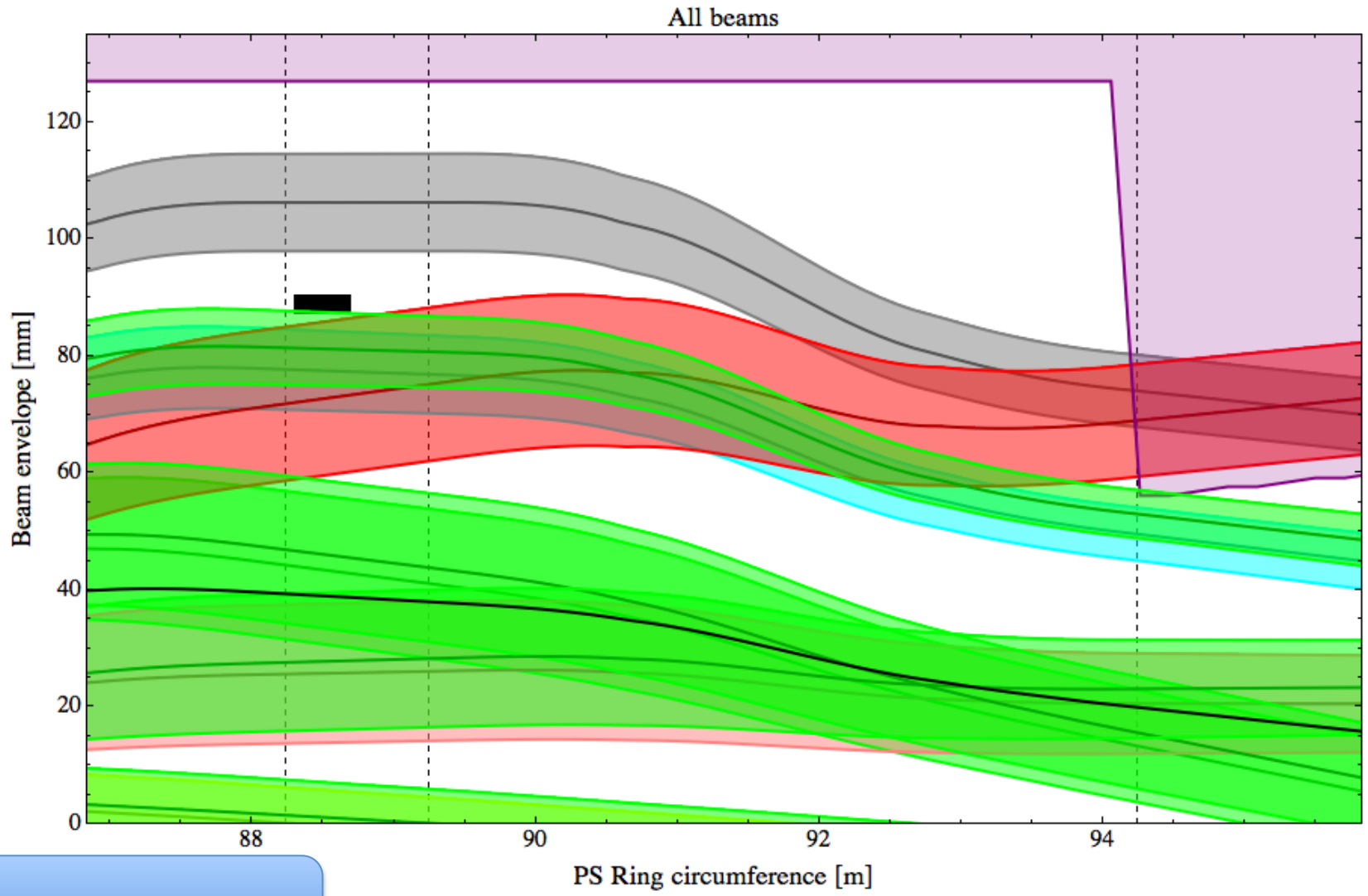
0 % Max. strength

Rise of the fast bump



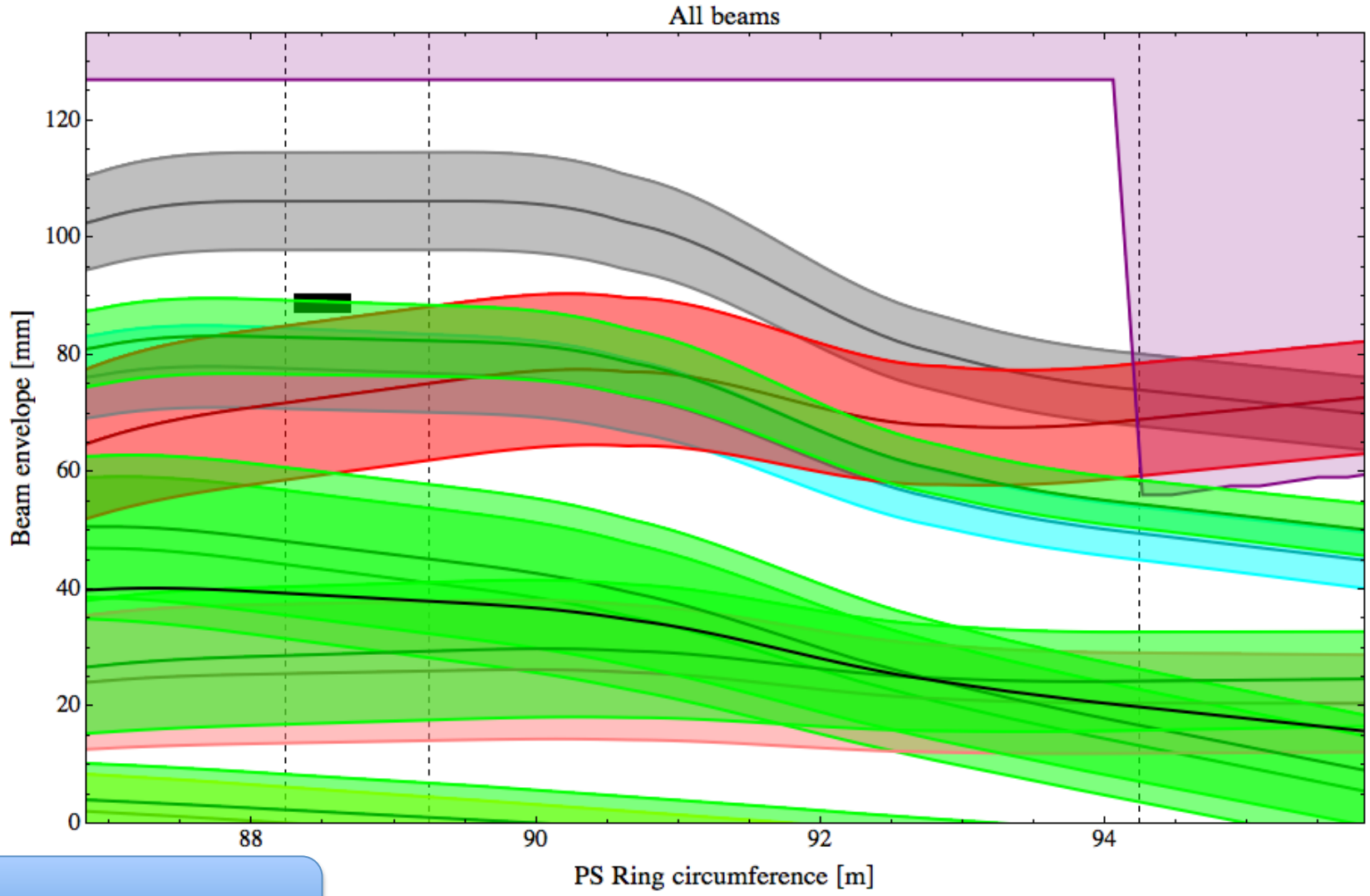
5 % Max. strength

Rise of the fast bump



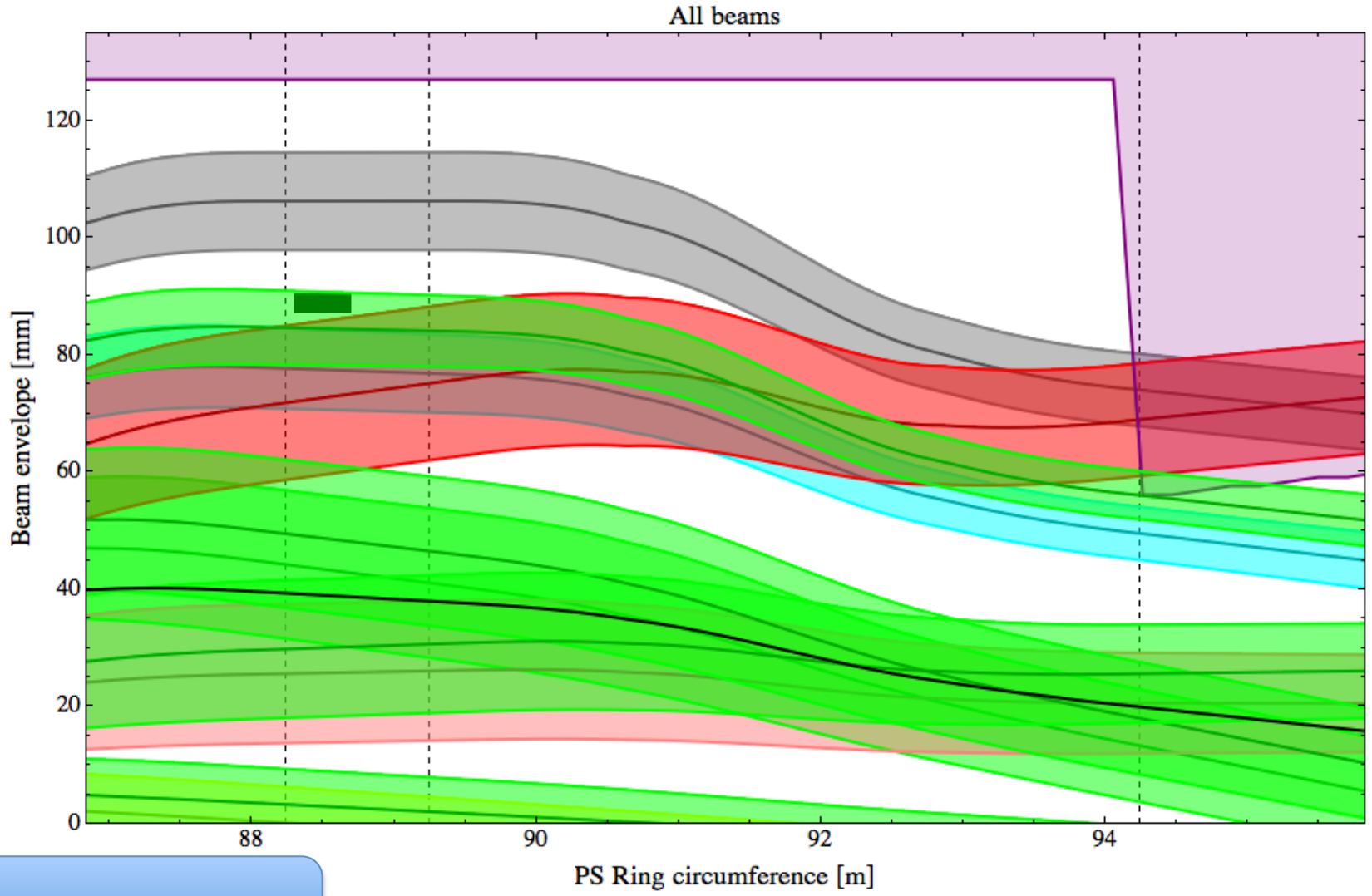
10 % Max. strength

Rise of the fast bump



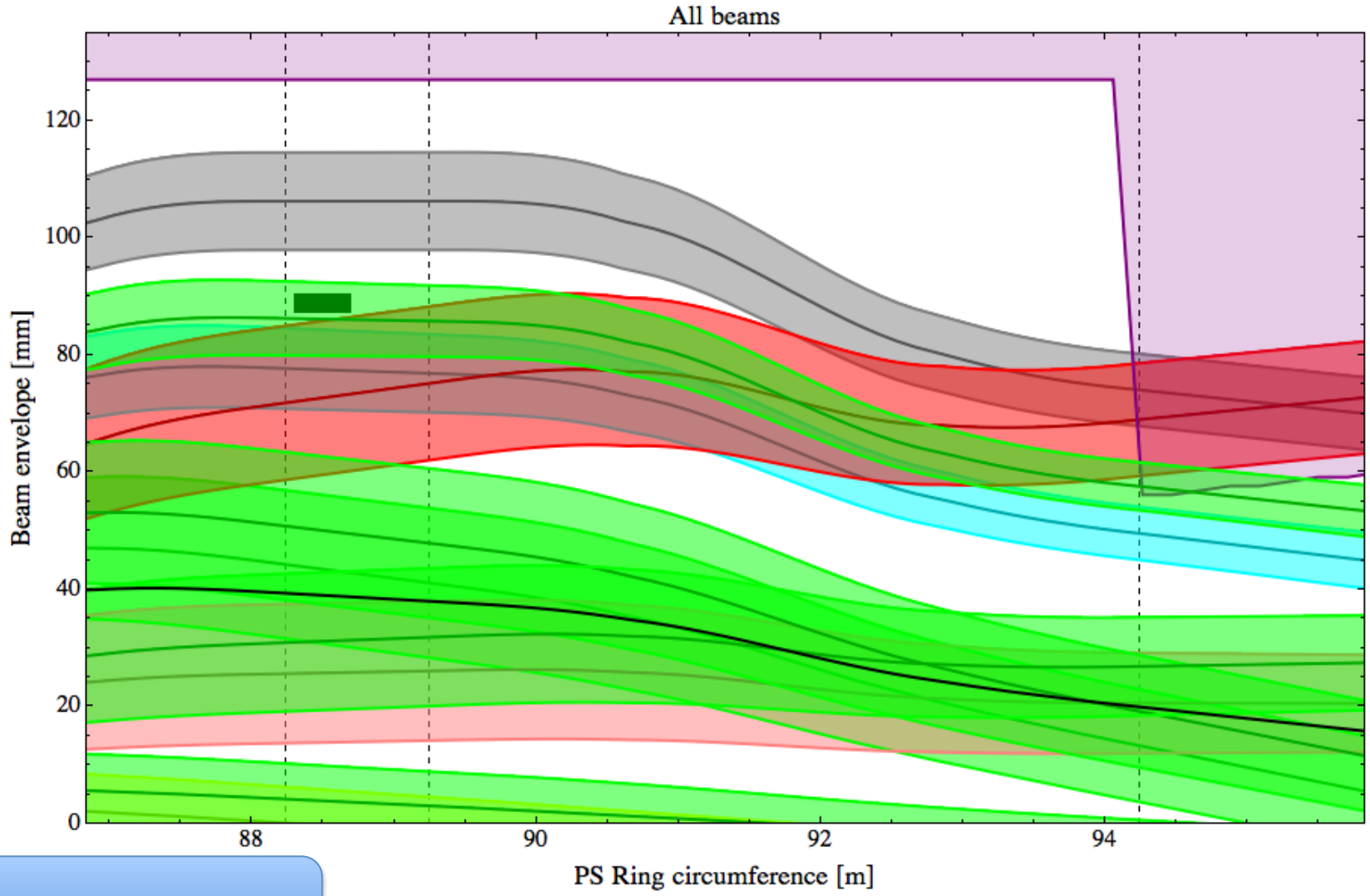
15 % Max. strength

Rise of the fast bump



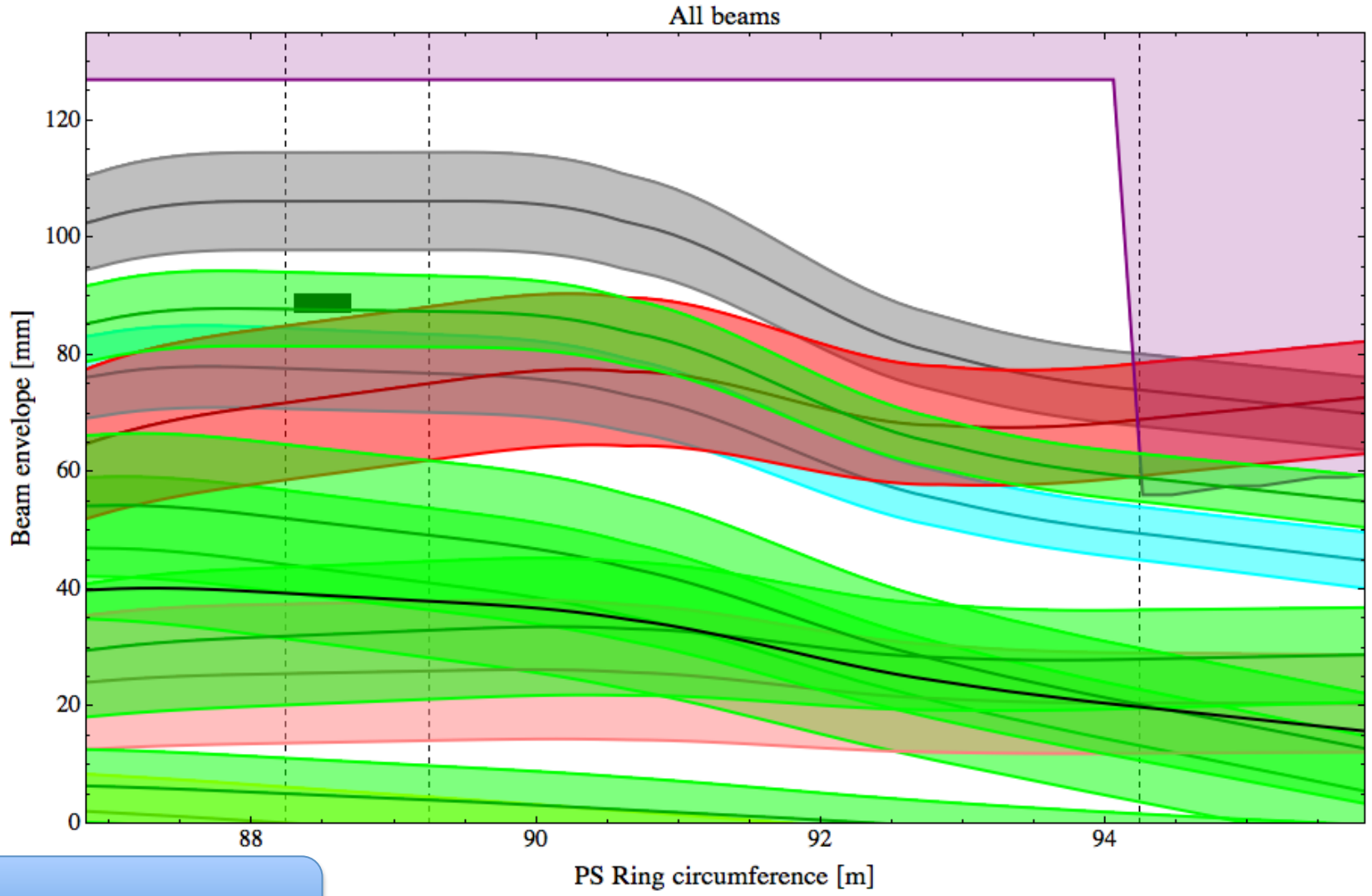
20 % Max. strength

Rise of the fast bump



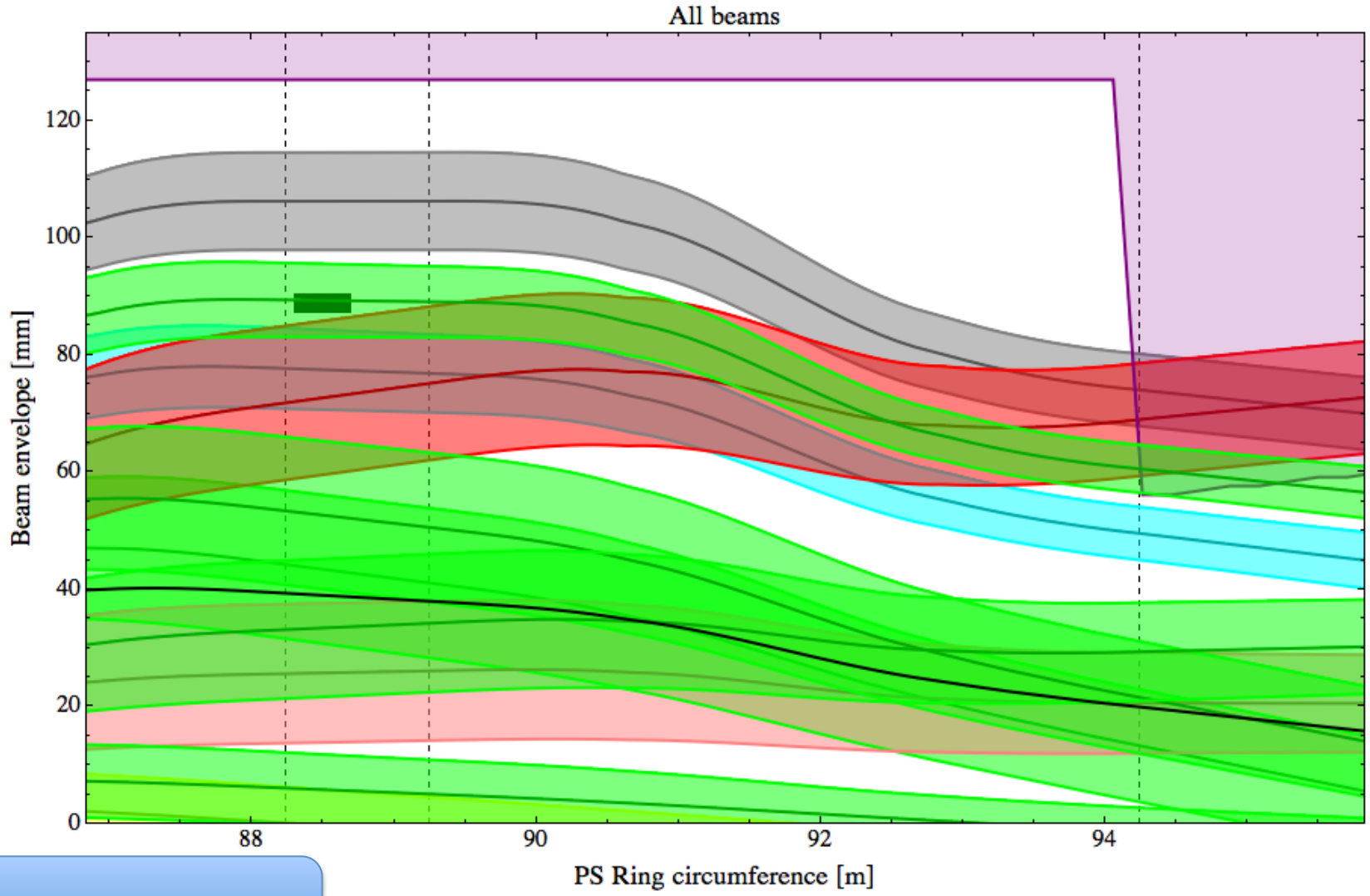
25 % Max. strength

Rise of the fast bump



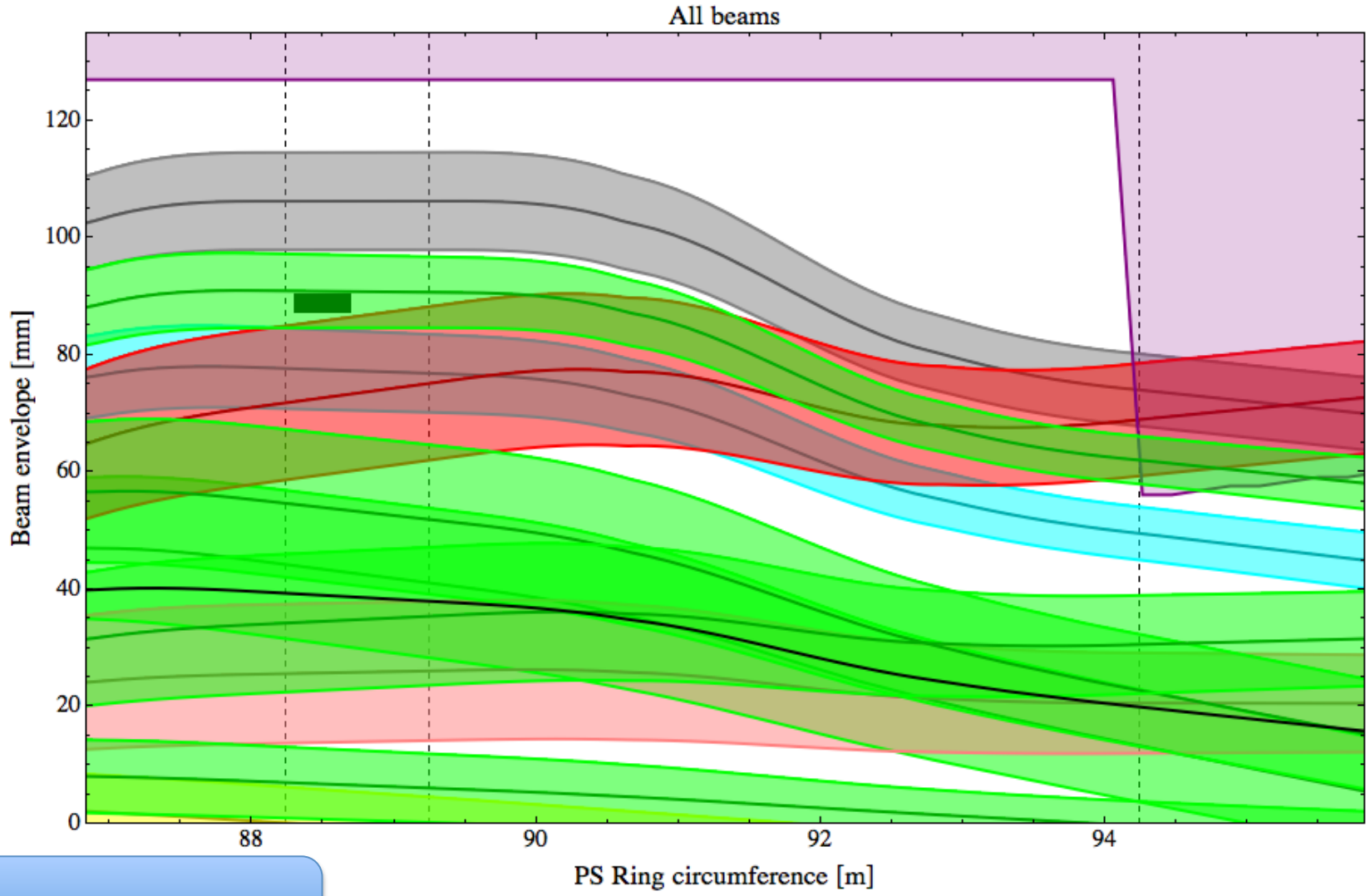
30 % Max. strength

Rise of the fast bump



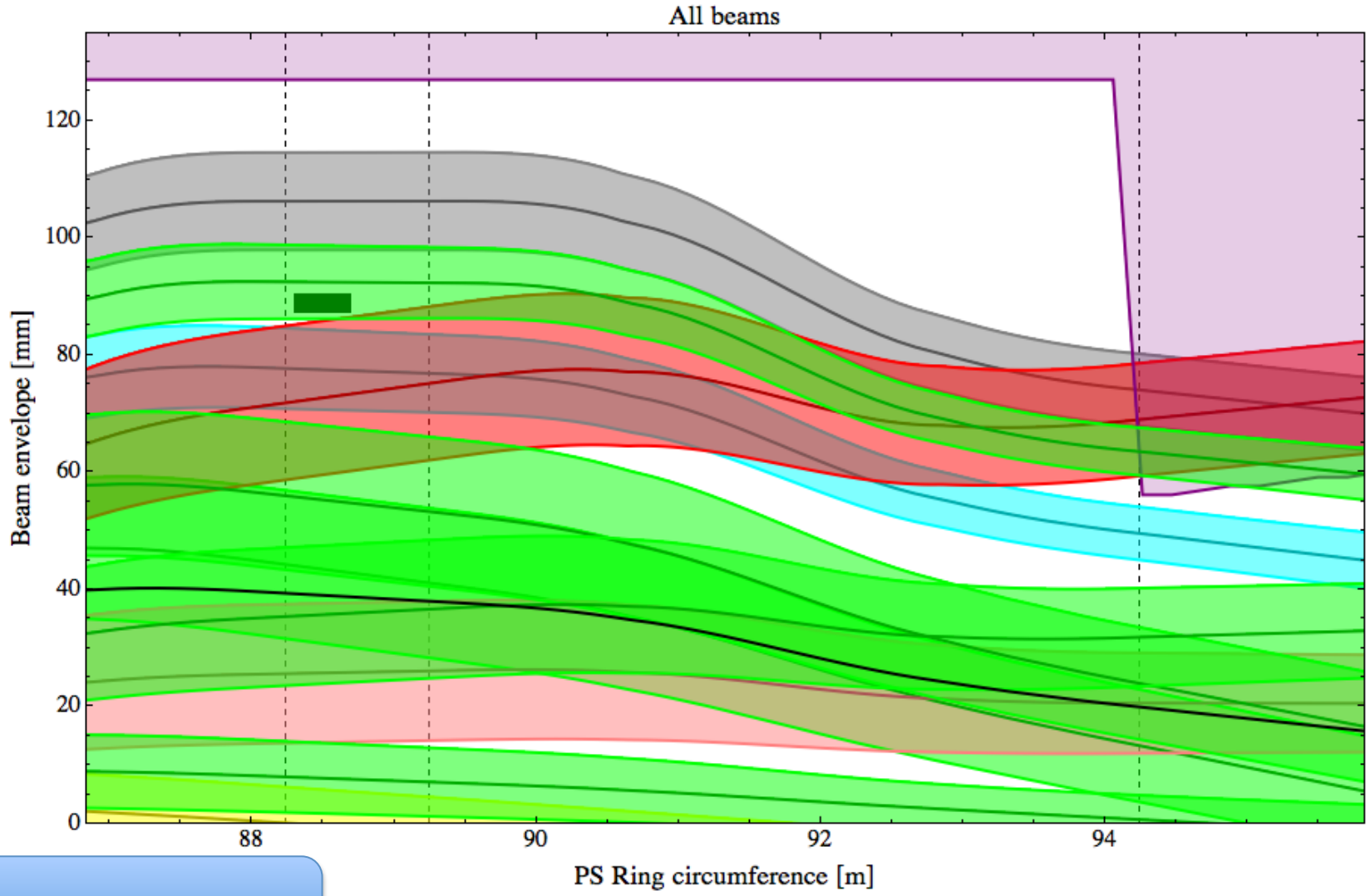
35 % Max. strength

Rise of the fast bump



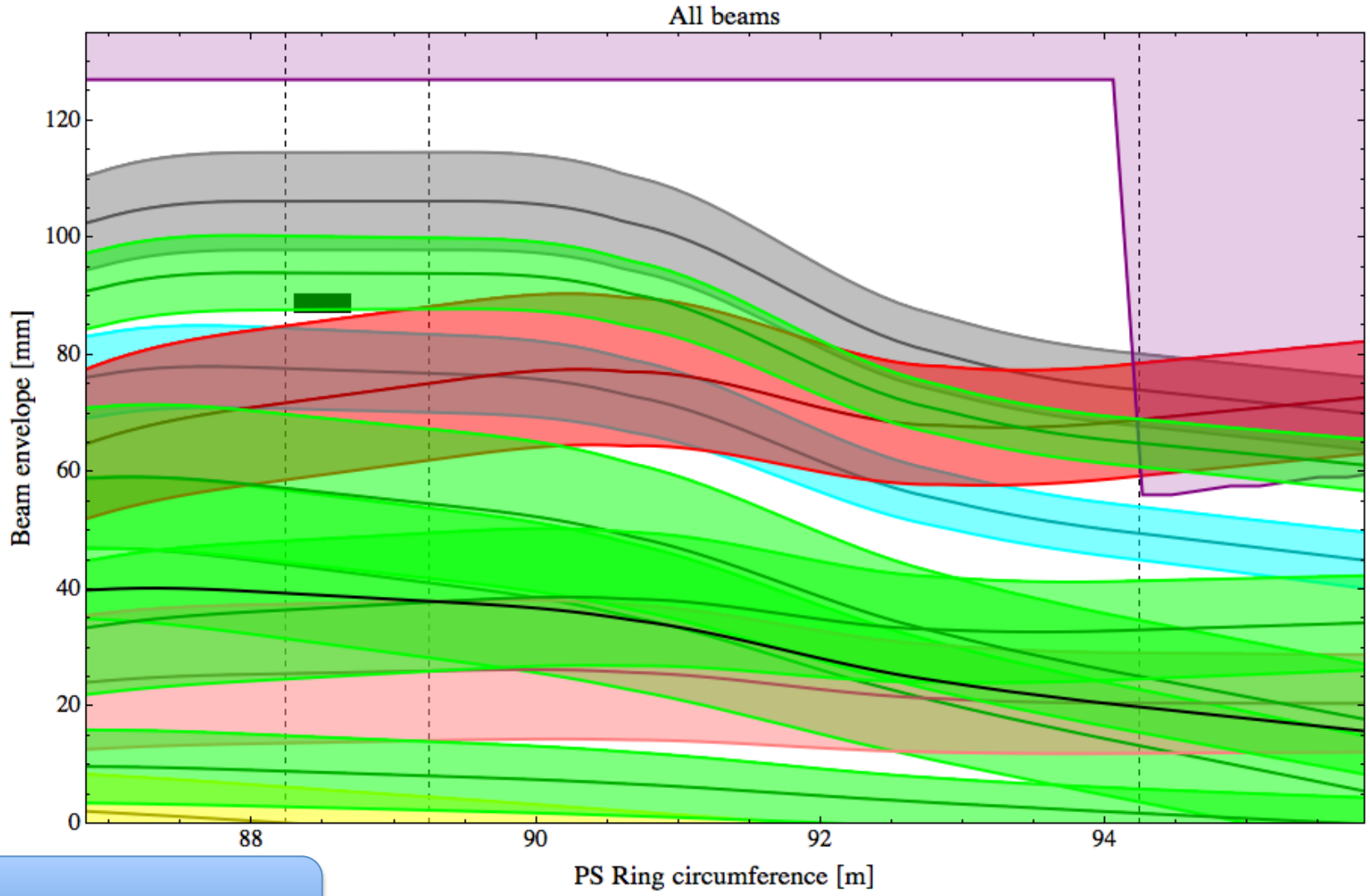
40 % Max. strength

Rise of the fast bump



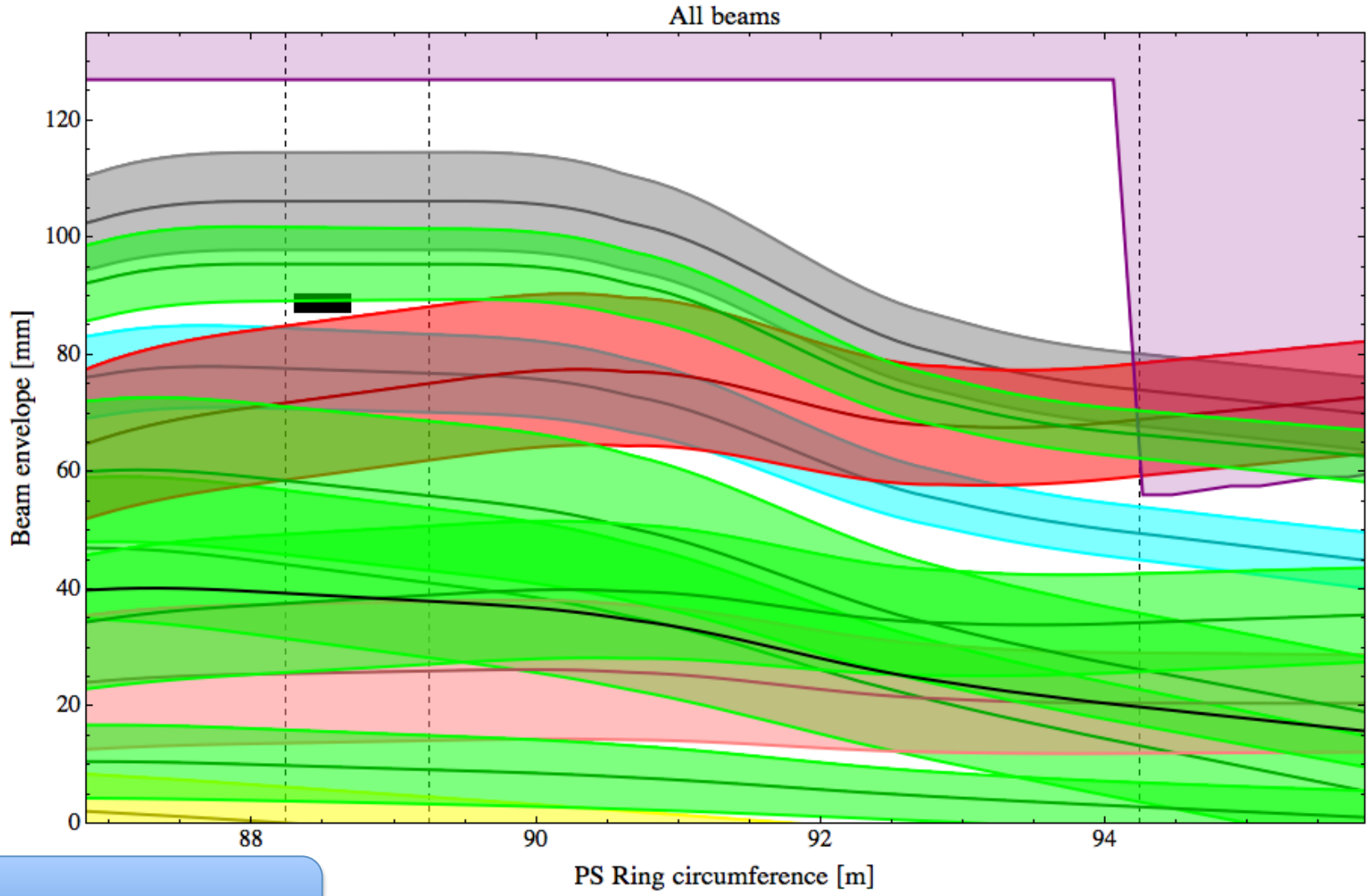
45 % Max. strength

Rise of the fast bump



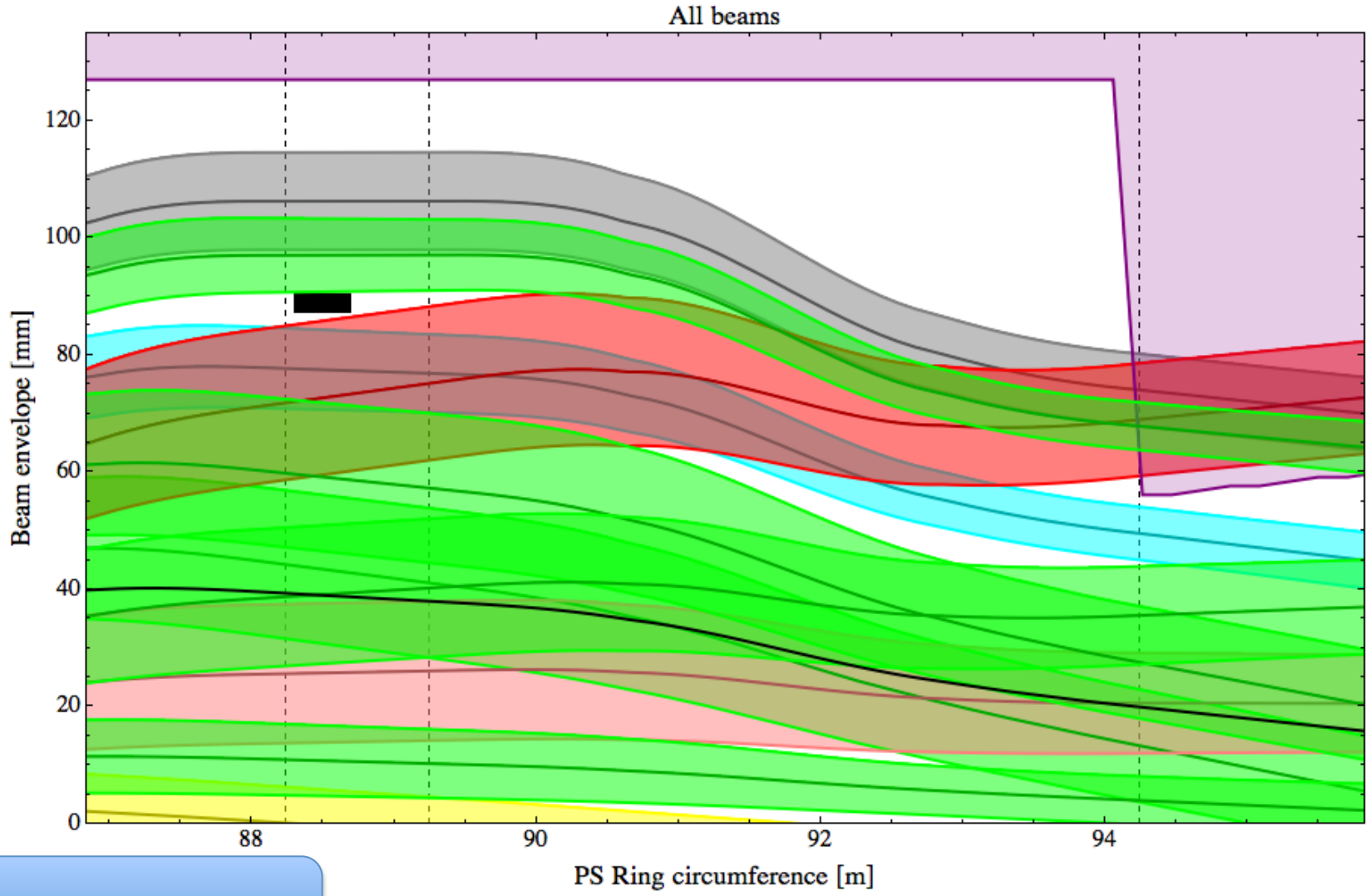
50 % Max. strength

Rise of the fast bump



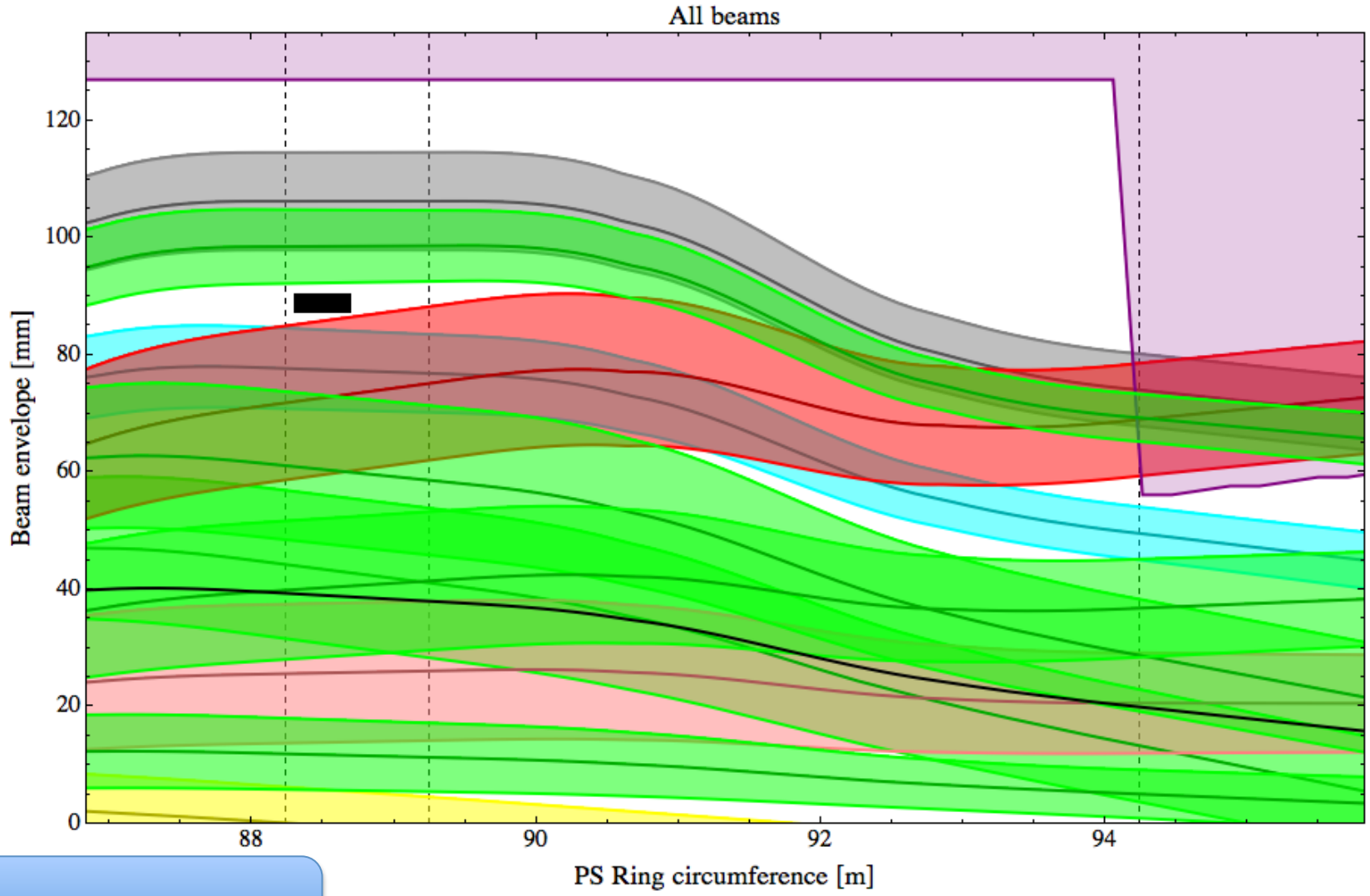
55 % Max. strength

Rise of the fast bump



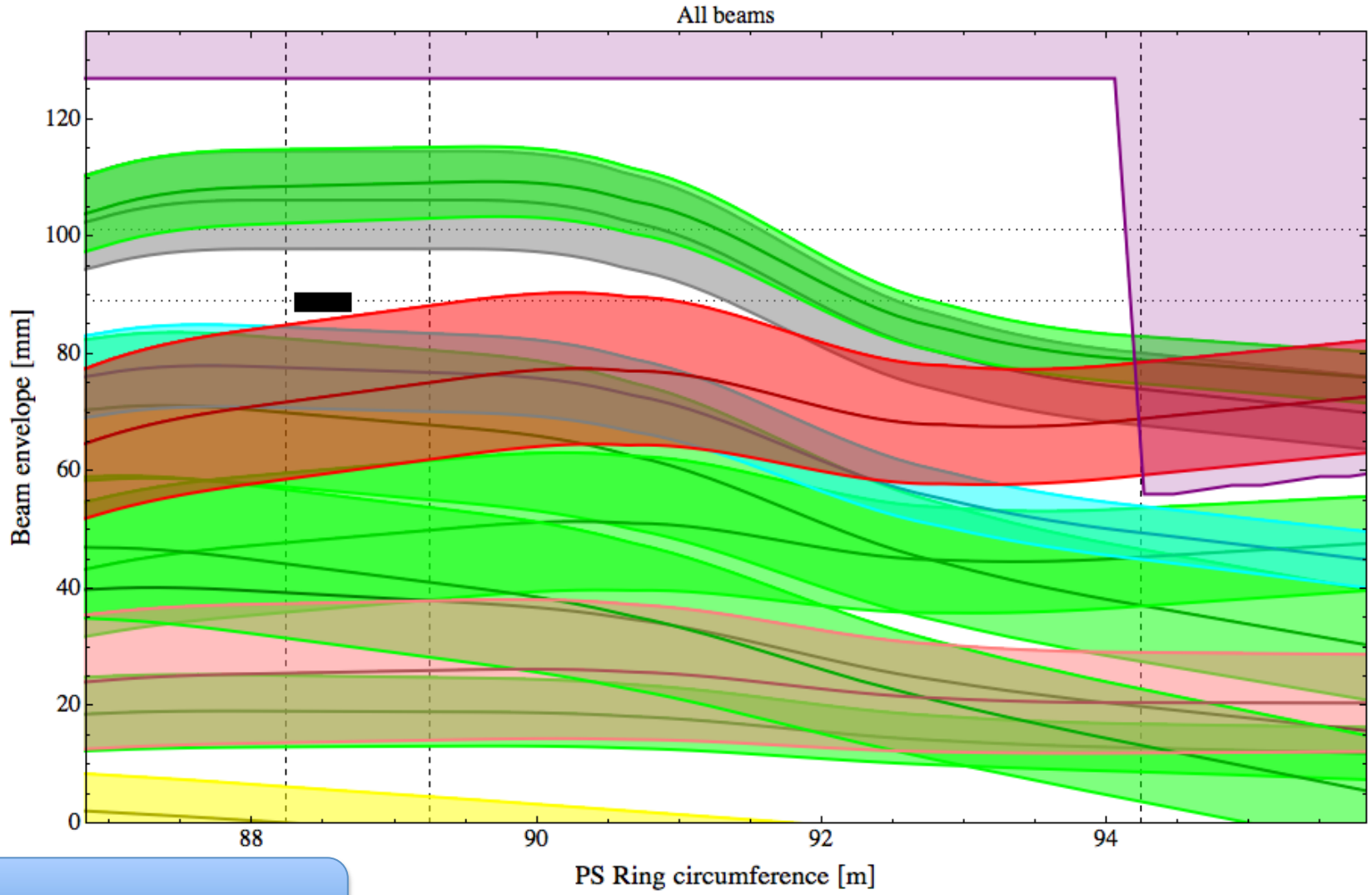
60 % Max. strength

Rise of the fast bump



65 % Max. strength

Rise of the fast bump



100 % Max. strength

Shadowing and positioning of the blade

- Efficient shadowing of SMH16 seems to be possible
  - Margins (e.g. with respect to the TOF trajectory) are very tight
  - Slight repositioning of SMH16 is possible (??)
- Beta is larger is SS15 than in SS16, the beam stays a longer time “in” the dummy blade than in the SMH16 blade

Assumed blade dimensions and position

- 3 mm thick
- 40 cm long
- Horizontal position: 87.3 mm <-> 90.3 mm