

Dynamic aperture comparison for ILC damping ring Of DSB3 and DMC4

Yipeng SUN, Mauro Pivi

SLAC

Susanna Guiducci

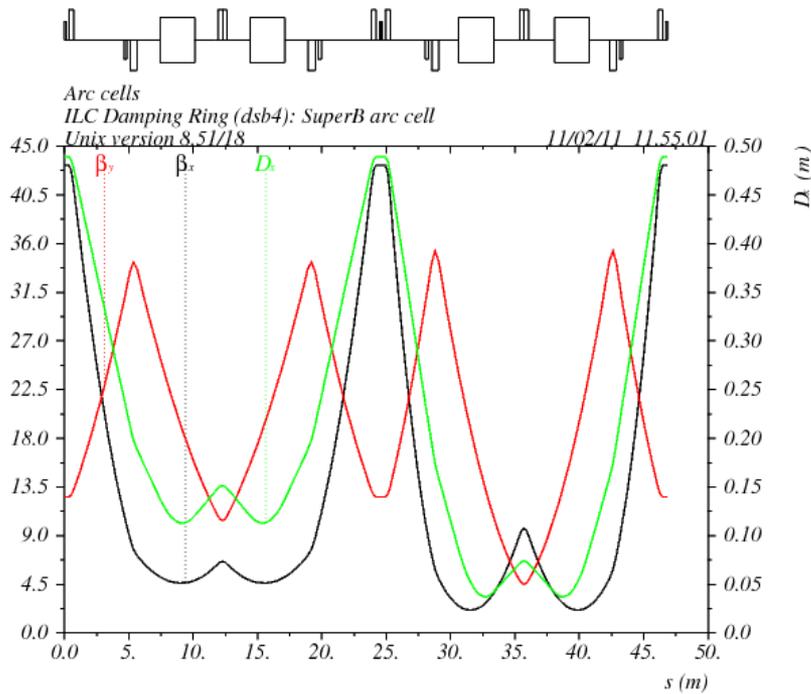
INFN

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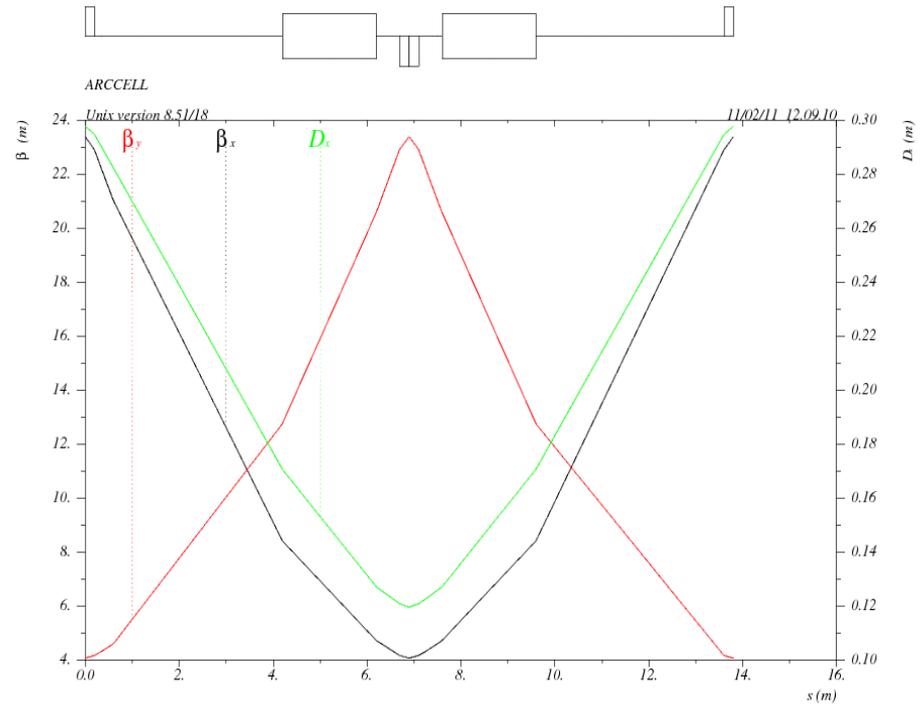
Introduction

- Both from ILC DR website
- DMC4
 - FODO arc with 3 phase advance, momentum compaction tunable
 - Pick 90 degree case, $\alpha=2.7e-4$
 - Need 15 MV to get 6mm bunch length
- DSB3
 - SuperB cell (TME shape)
 - One momentum compaction for current design
 - $\alpha=1.3e-4$
 - Need ~8 MV to get 6mm bunch length
- Convert both from MAD to Elegant, then track DA...
- Damping time 2400 turns, track 400 turns

Arc cell



DSB

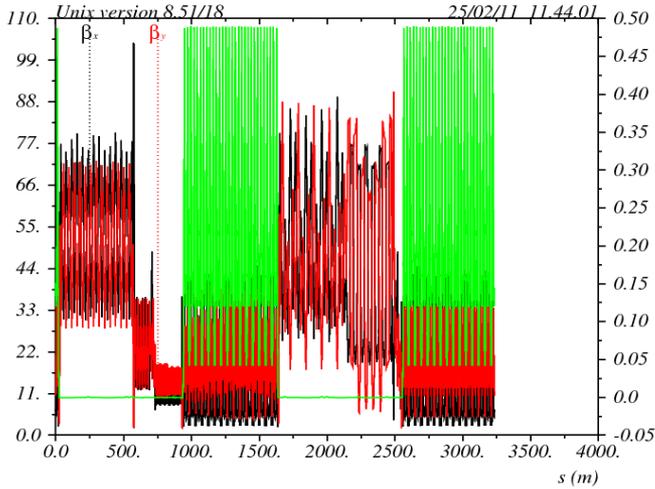


DMC

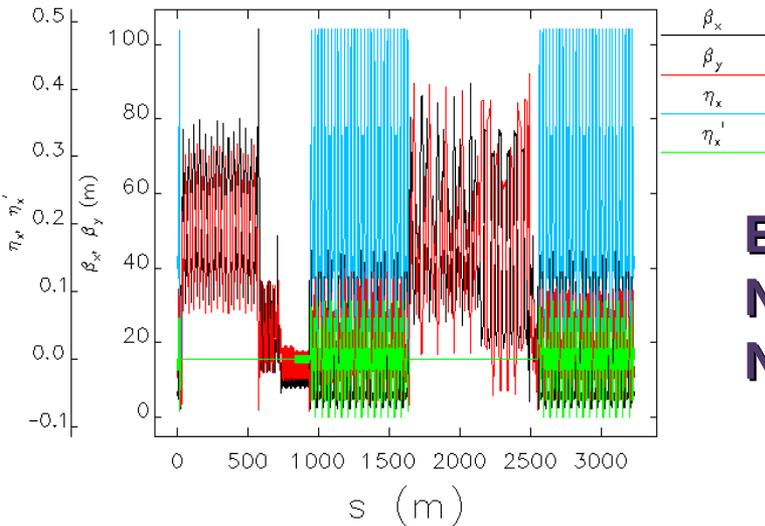
DSB3 (400 turns)



RINGRI



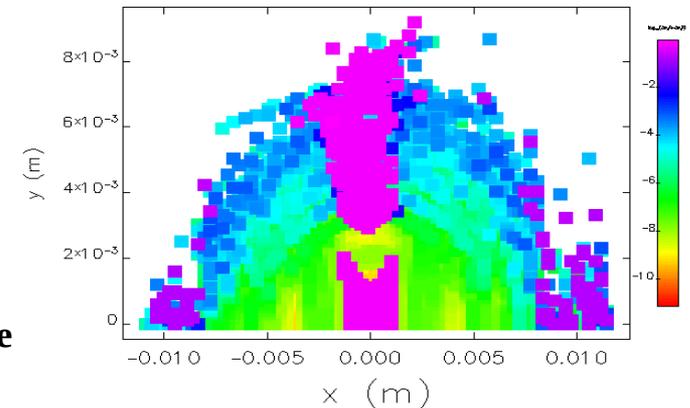
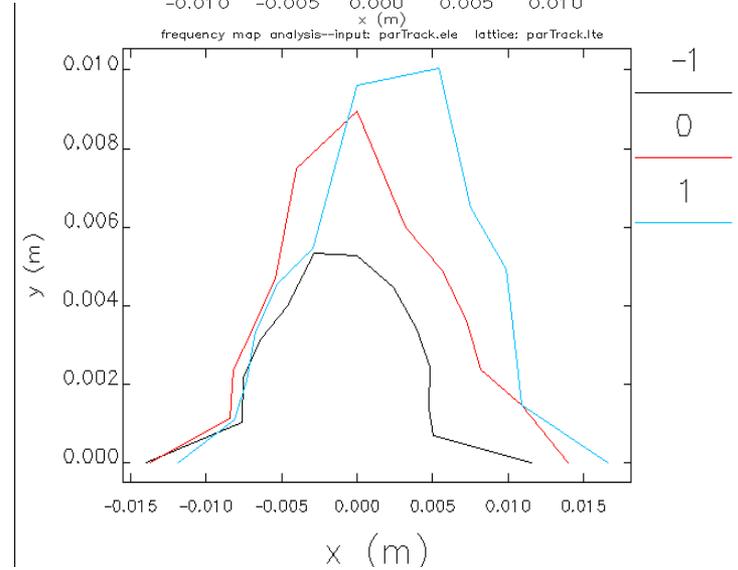
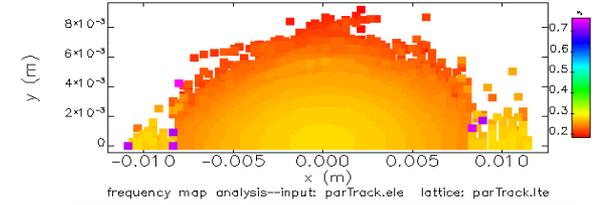
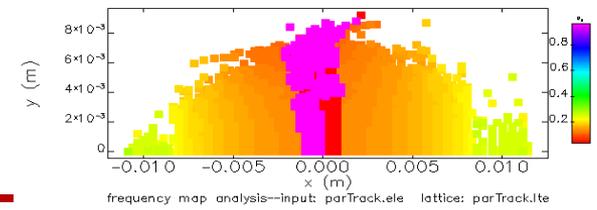
MAD
Nux=47.16
Nuy=26.26



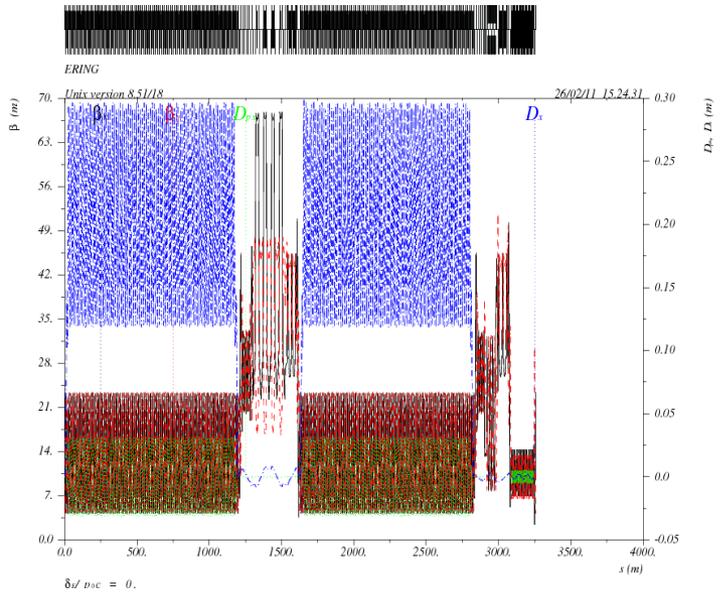
Elegant
Nux=47.15
Nuy=26.28

Presentation Title
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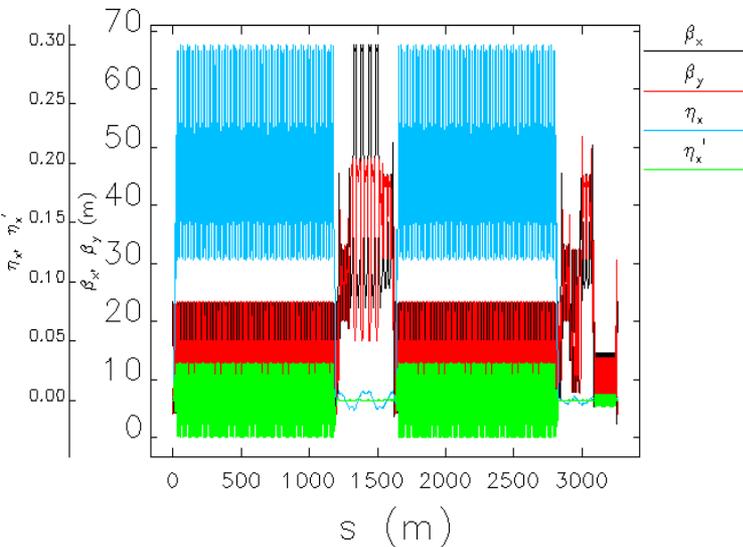
Twiss parameters--input: parTrack.ele lattice: parTrack.lte



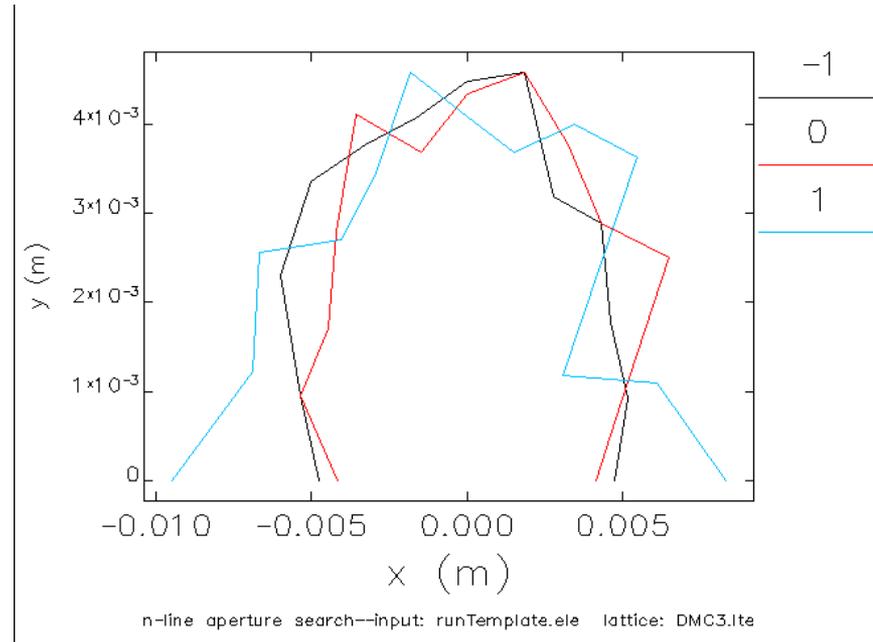
DMC4---90degree



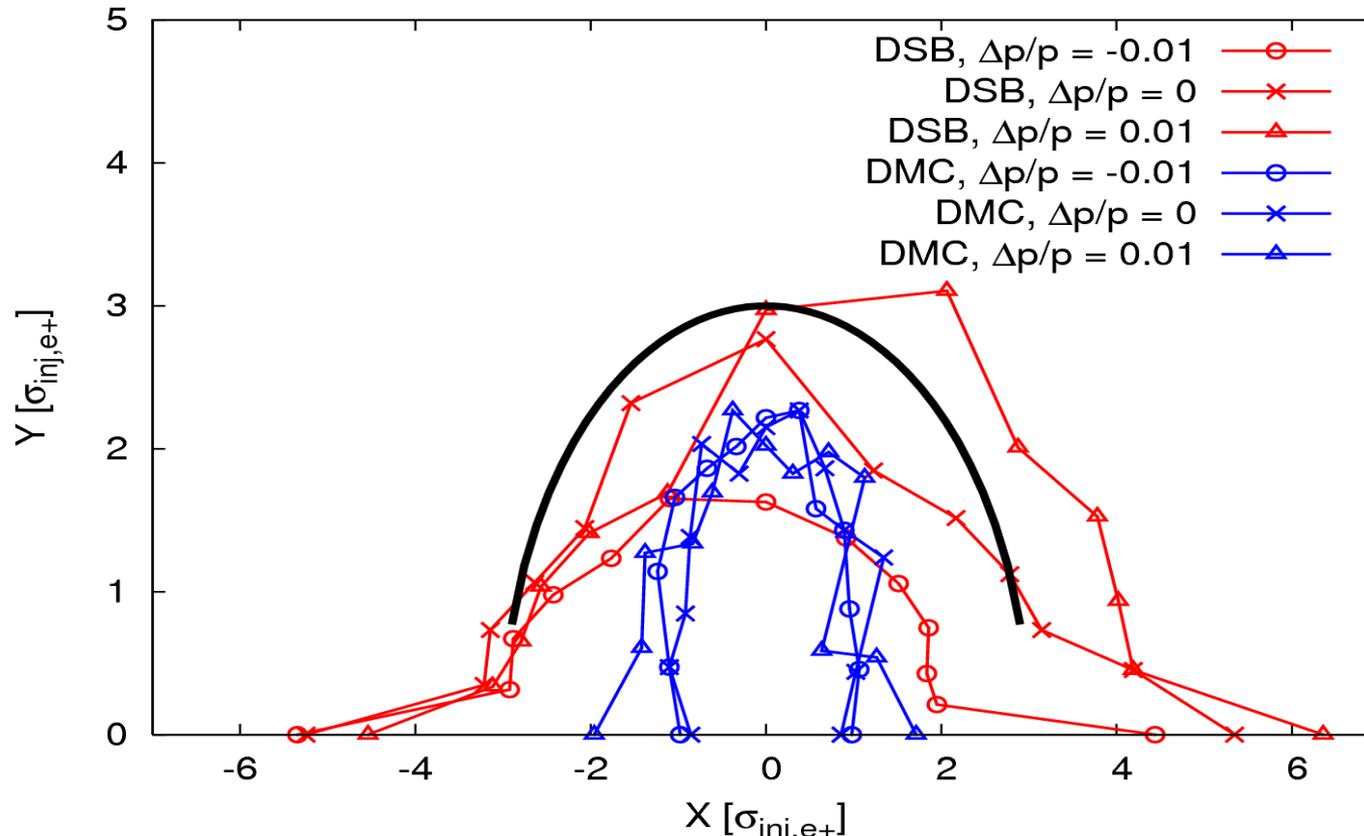
MAD
Nux=51.24
Nuy=50.17



Elegant
Nux=51.24
Nuy=50.18



Comparison of DA



Normalized using beta at starting point, and injected positron emittance, 1sigma at 1e-6m.rad