

diffusion studies updates

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Jan 17th, 2012

last presentation

next steps

*collimators now
fully retracted*

- understand the problems for high amplitude distributions
- Finish to run all the cases
- Analyze simulation results and calculate diffusion coefficients
- Improve diffusion description in Lifetrack. Which effects must be added? IBS and? (space charge negligible?)
- Collimators?

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first of all: are the obtained results reasonable?

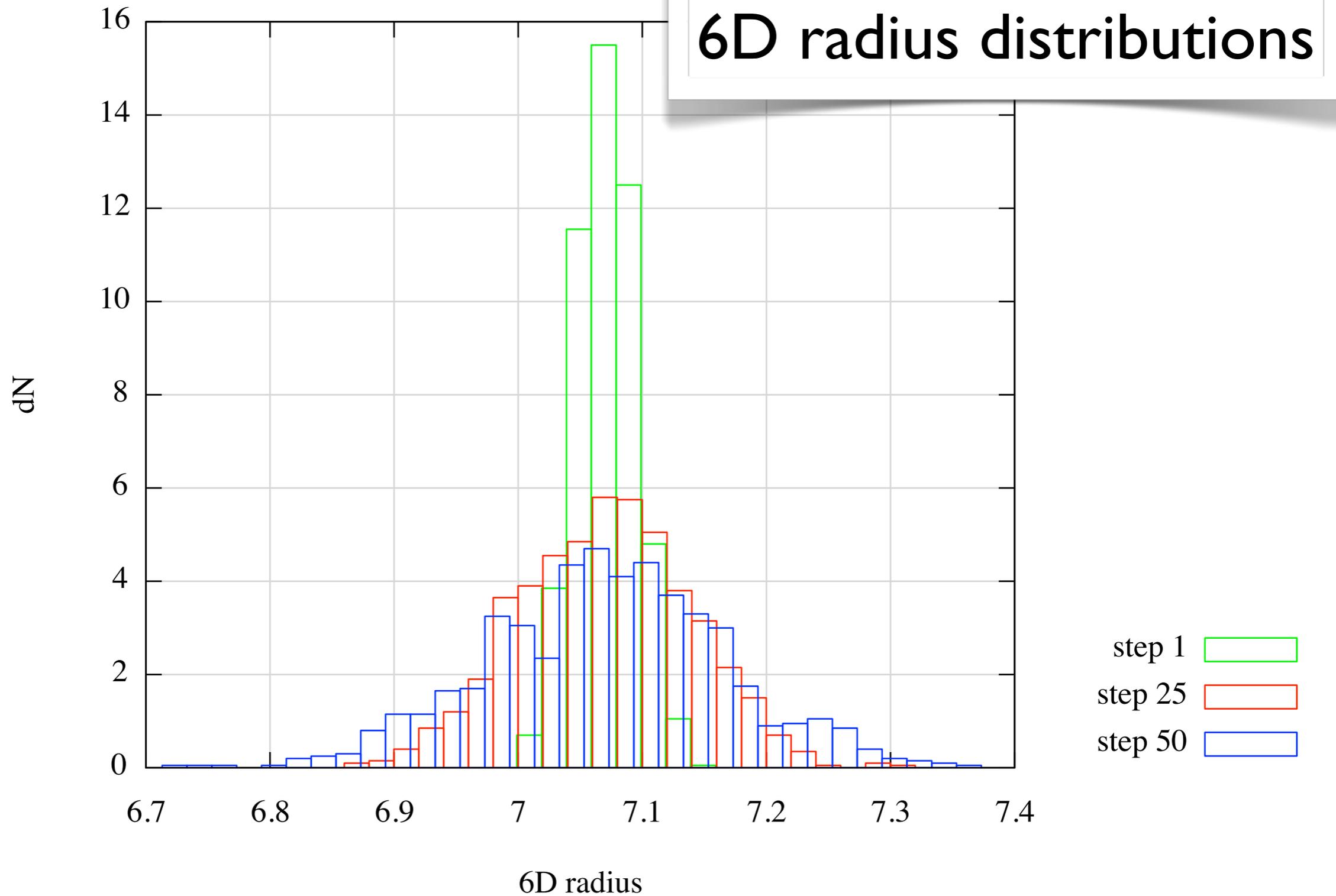
simulation specs

- 1000 particles, 50 steps of 200,000 each
- corresponding to 3 min and 40 sec, data every 4.4 s
- simulated 2,3 .. 10 sigma with and without BB (total of 16 cases)
- the ONLY difference in the two TASKFILES is the Xi_bs parameter!

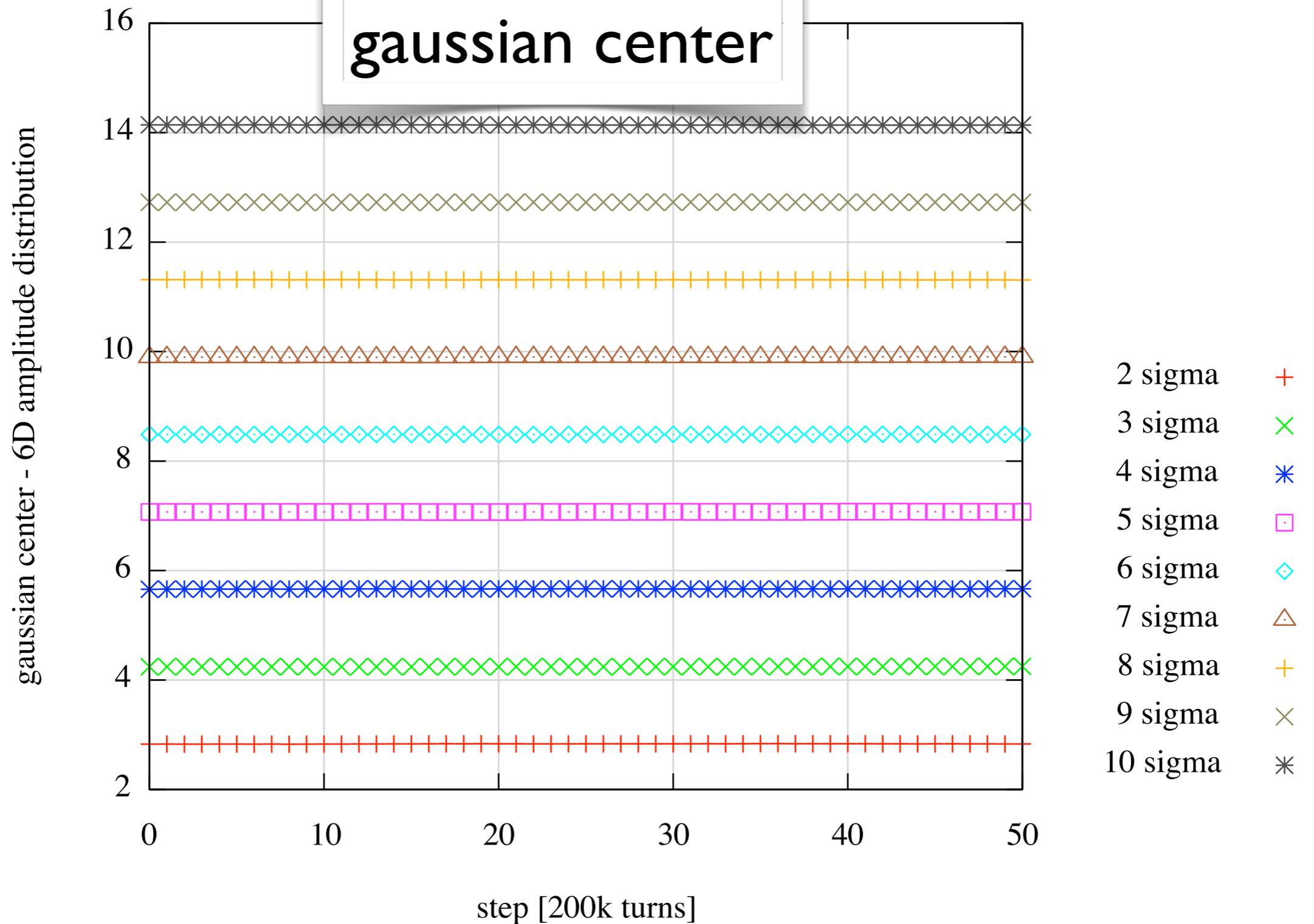
```
[02:35 PM]macbook:diffusion_studies> diff tev.tsk tev-noBB.tsk
143,144c143,144
< !Xi_bs:      (y)=0.00
< Xi_bs:      (y)=0.006
---
> Xi_bs:      (y)=0.00
> !Xi_bs:      (y)=0.006
```

- aperture is set at 20 sigma
- collimators have been removed from the sequence
- histograms have been enabled
- computational time ~3h20min
- output data ~7.4 Mb

noise, NO BeamBeam



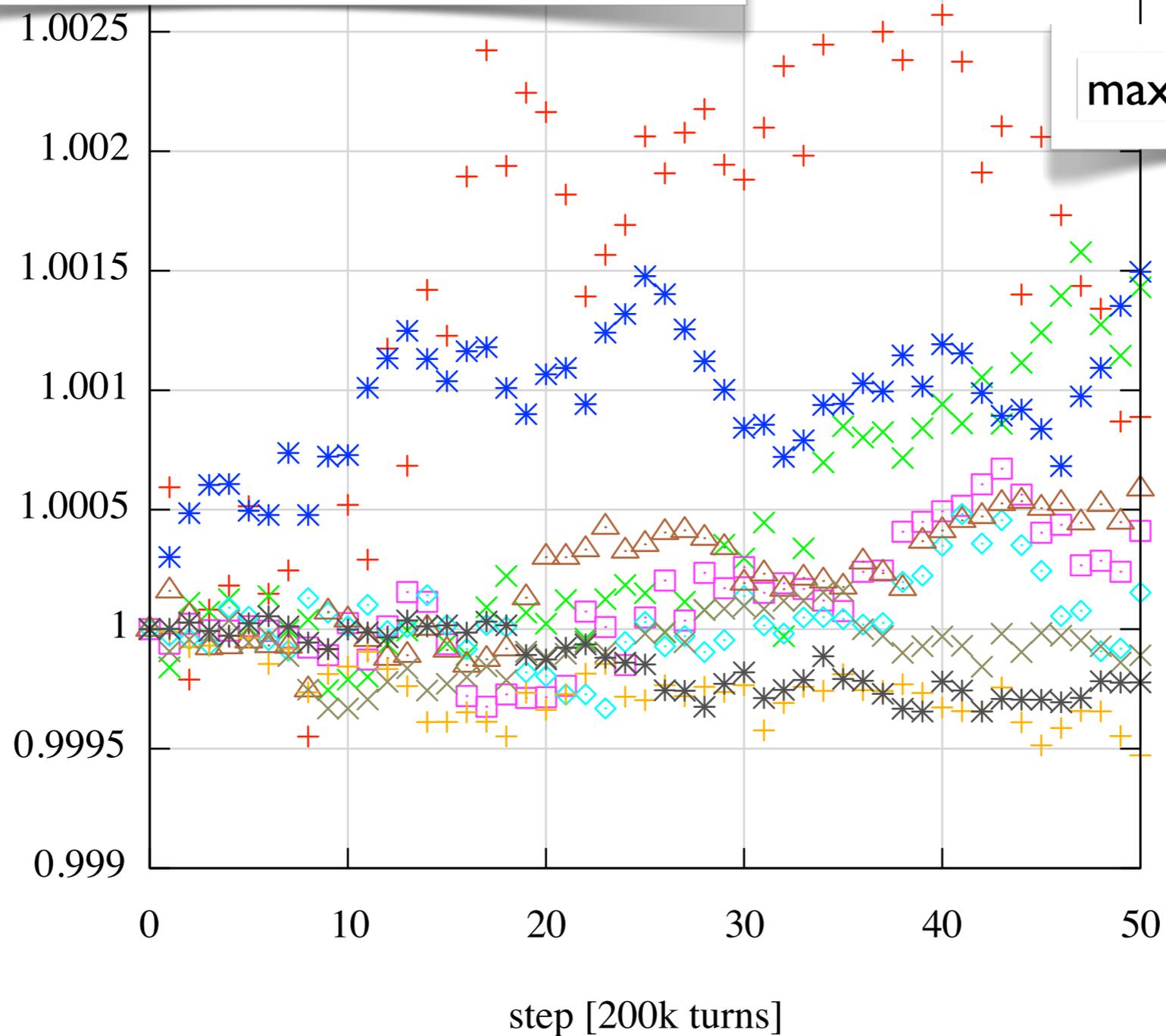
noise, NO BeamBeam



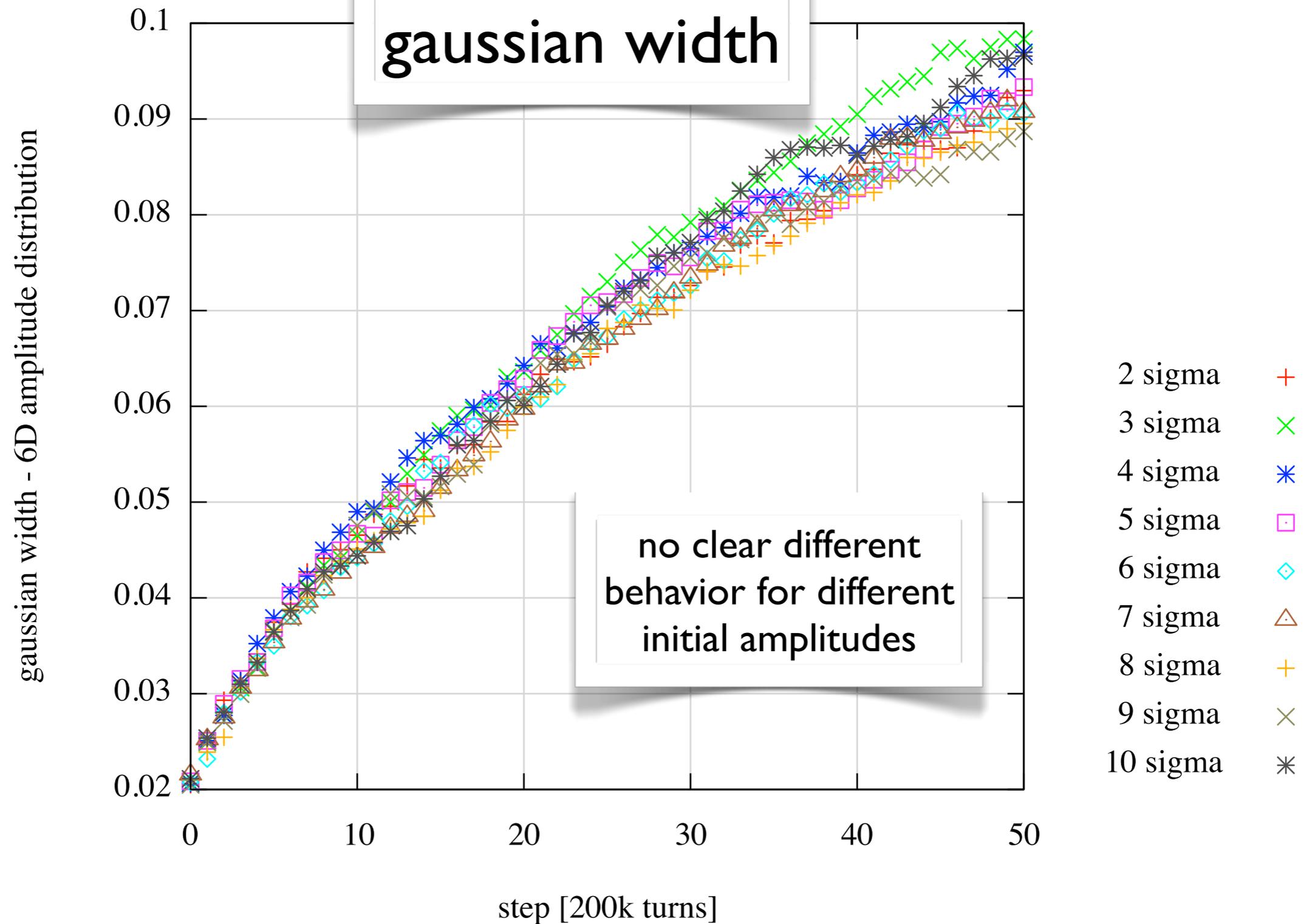
noise, NO BeamBeam

gaussian center normalized

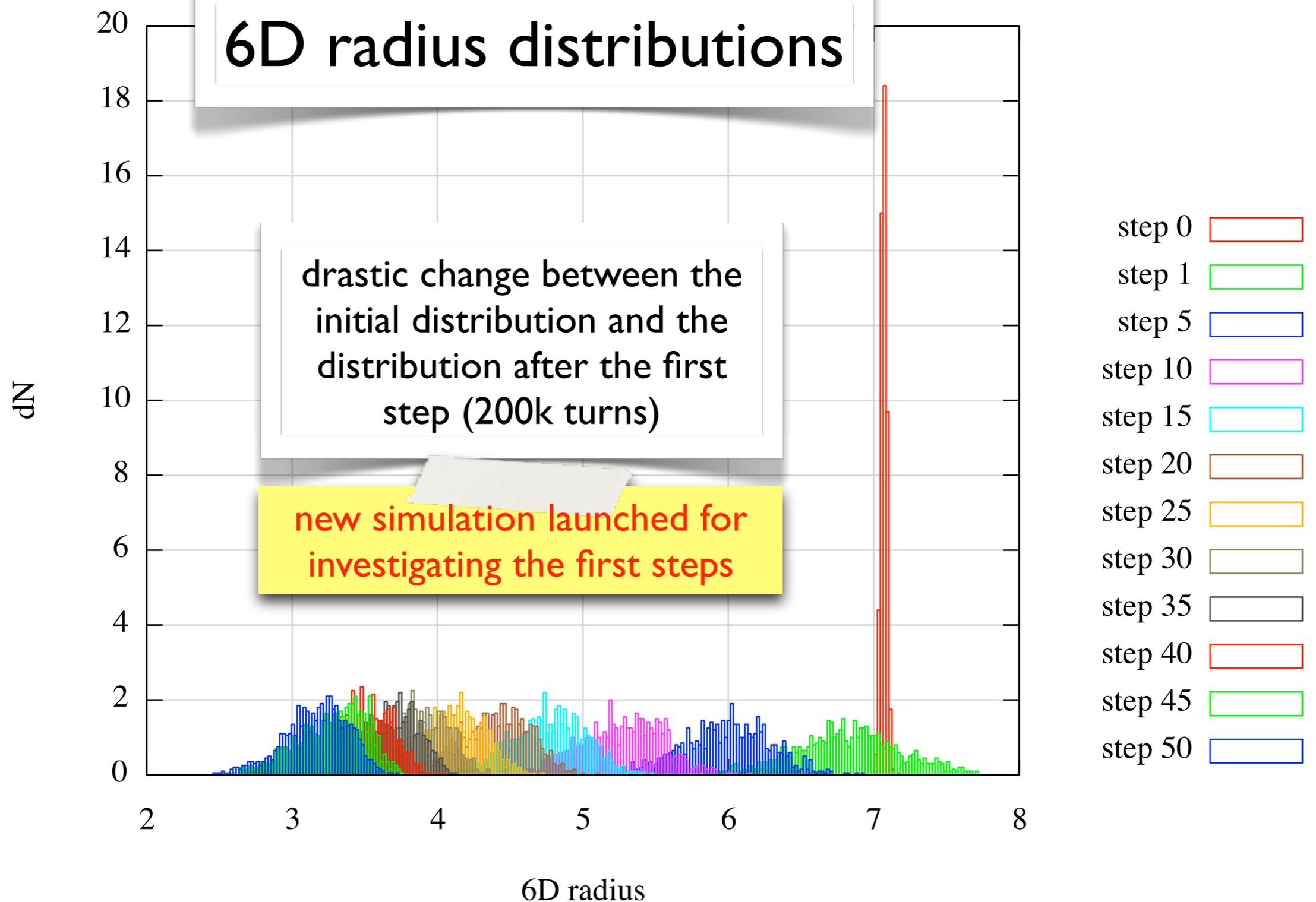
gaussian center/initial center - 6D amplitude distribu



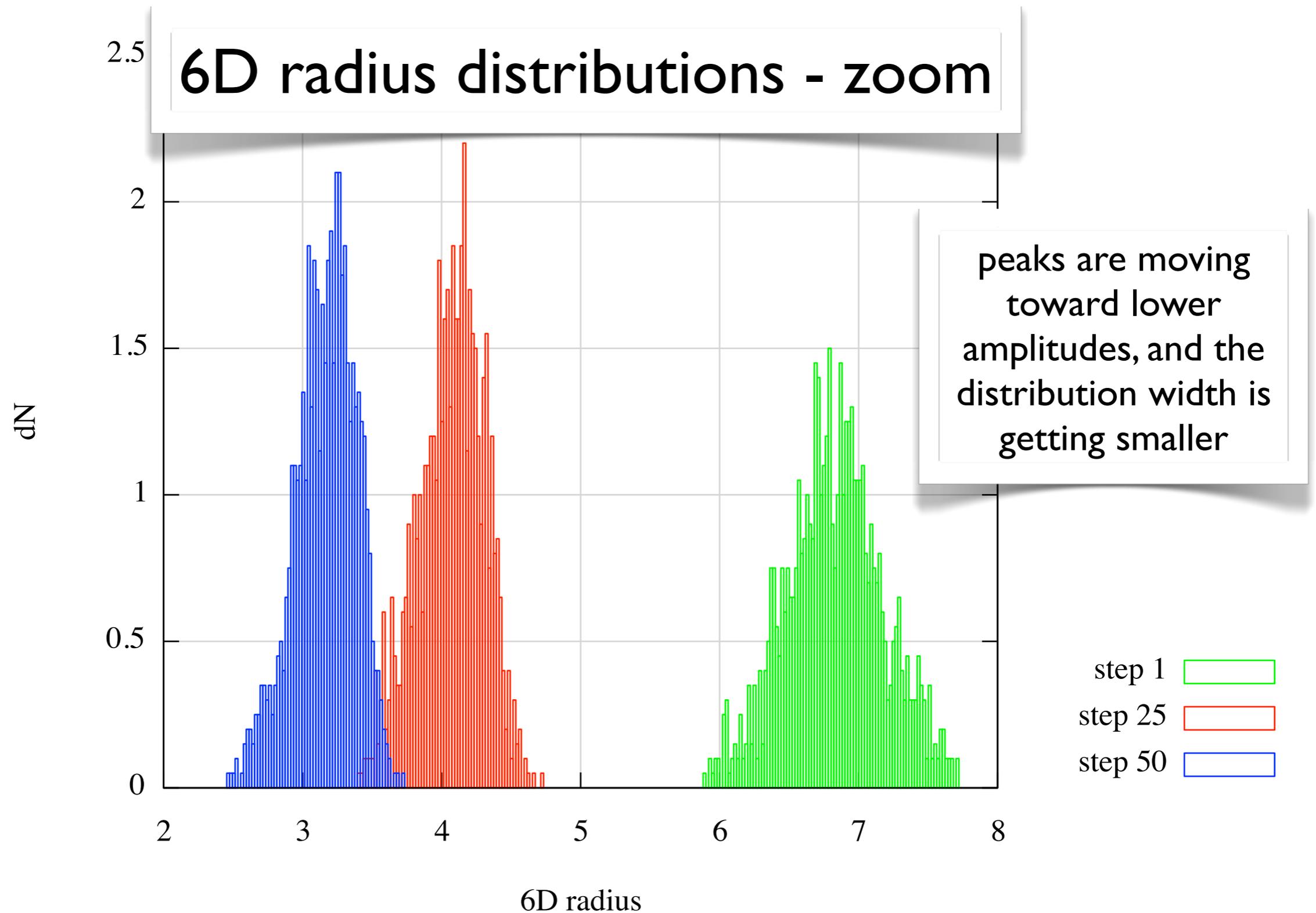
noise, NO BeamBeam



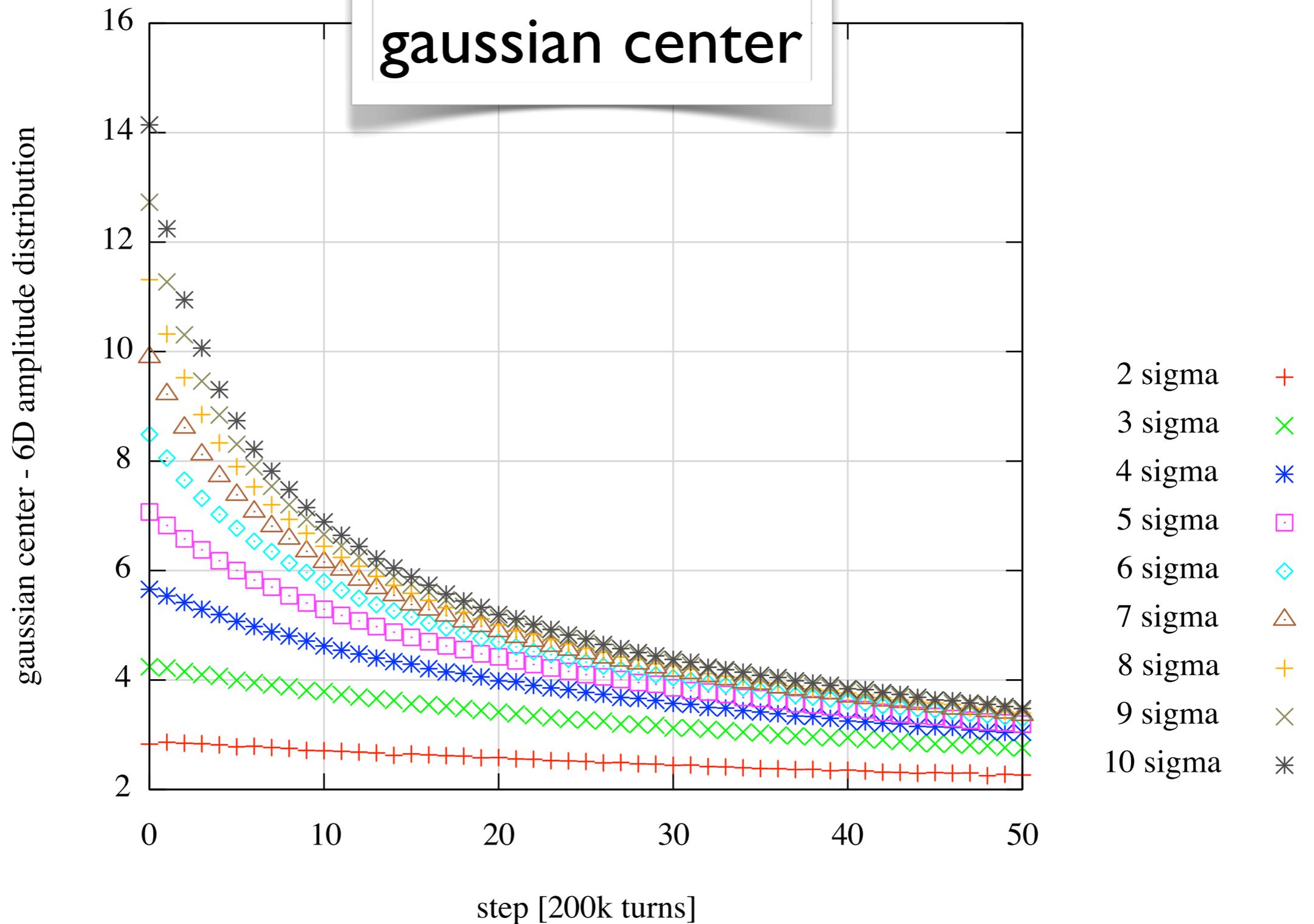
Noise + Beam Beam



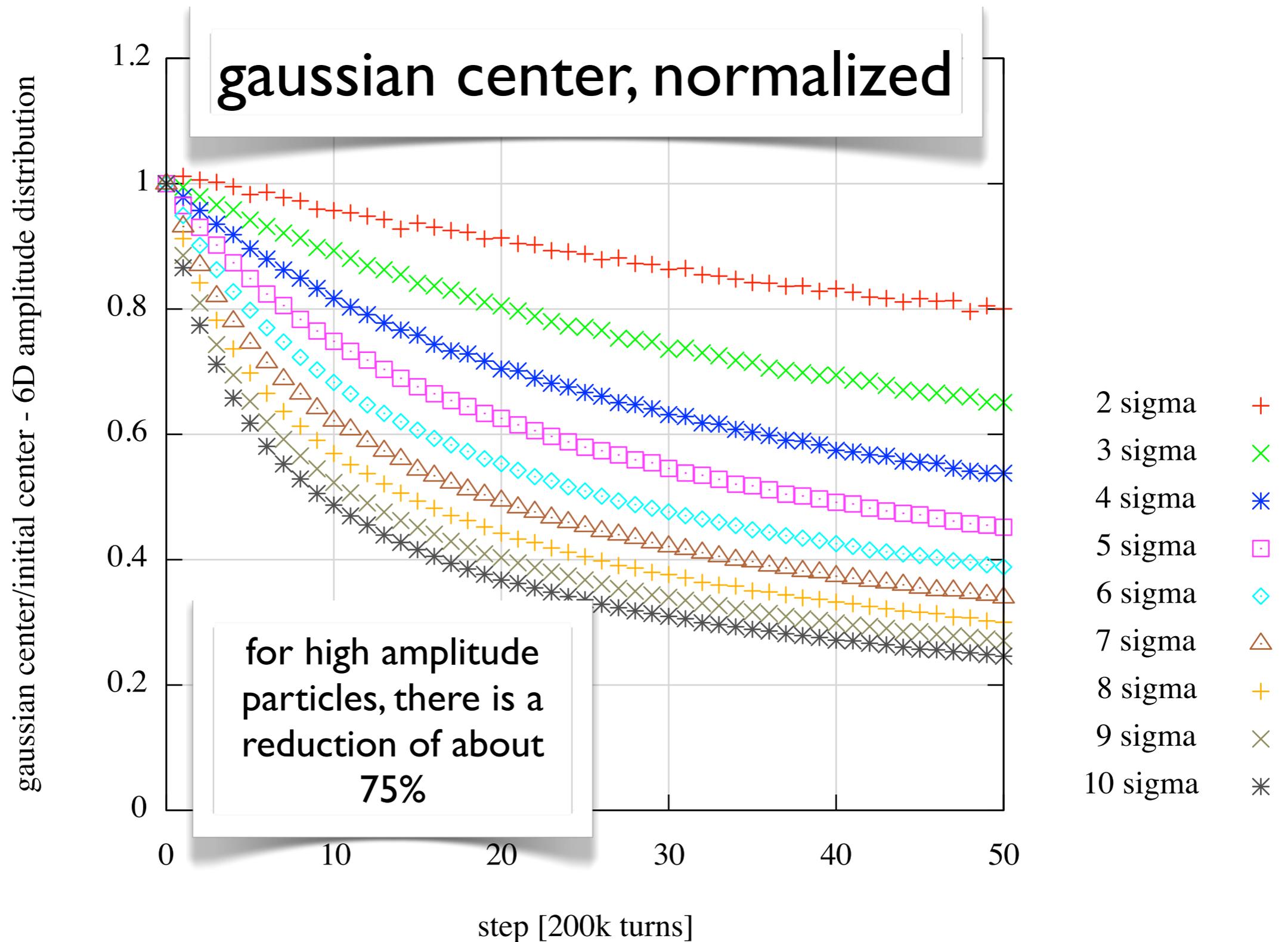
Noise + Beam Beam



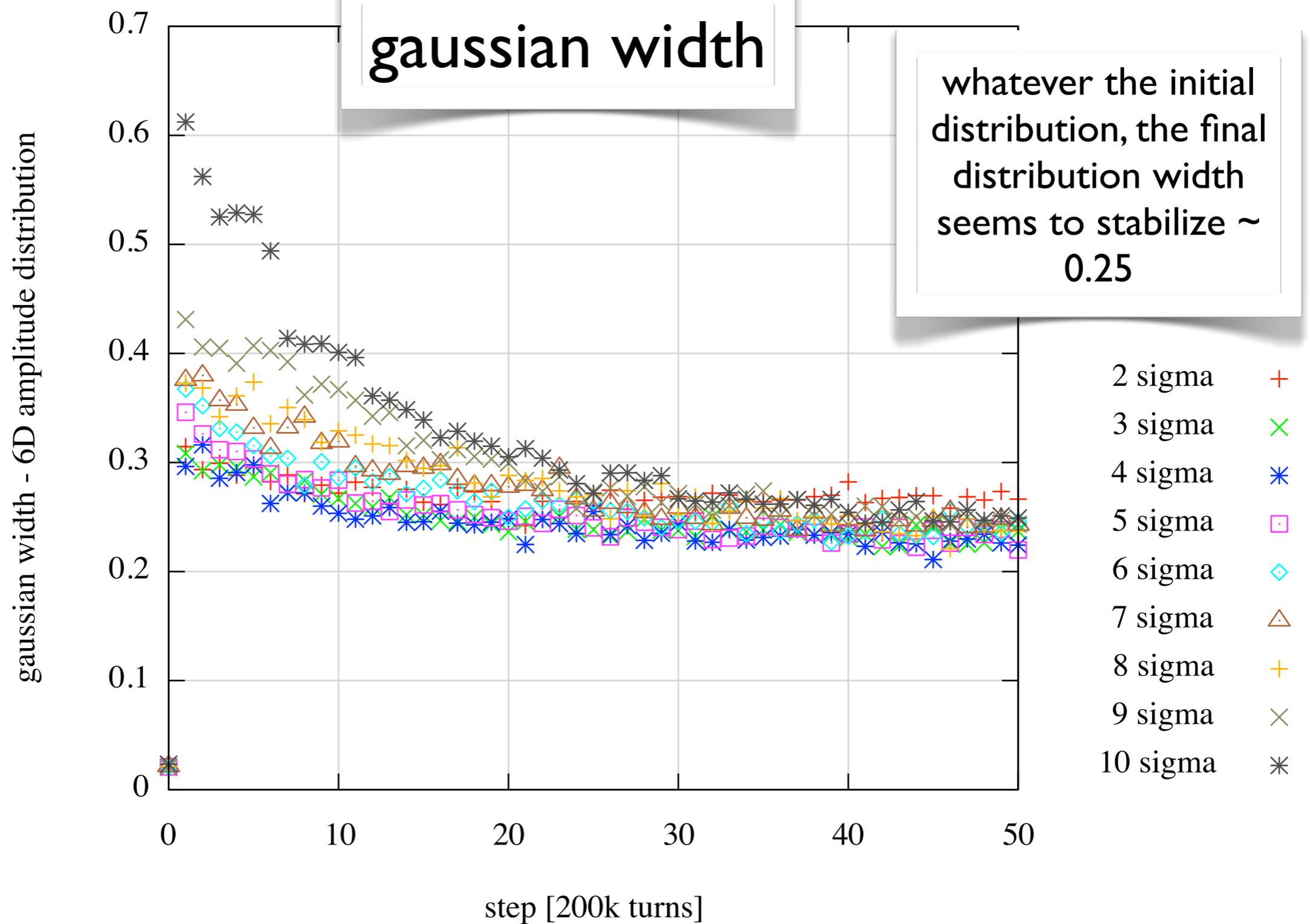
Noise + Beam Beam



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