

Some Considerations on the Main Linac Feedback

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- Work just started

Main Linac Feedback

- Can use
 - local feedback systems
 preselect correctors and BPMs
 - one-to-one correction
 use all correctors and BPMs
 - MICADO like algorithm
 choose the few most effective correctors, use all BPMs
- For the latter two knowledge of the lattice is a problem
 need to know the response matrix

Some Simulation Procedure

- Assumed errors

- $\sigma_K/K = 0.01$

- $\sigma_{BPMscale} = 0.1$

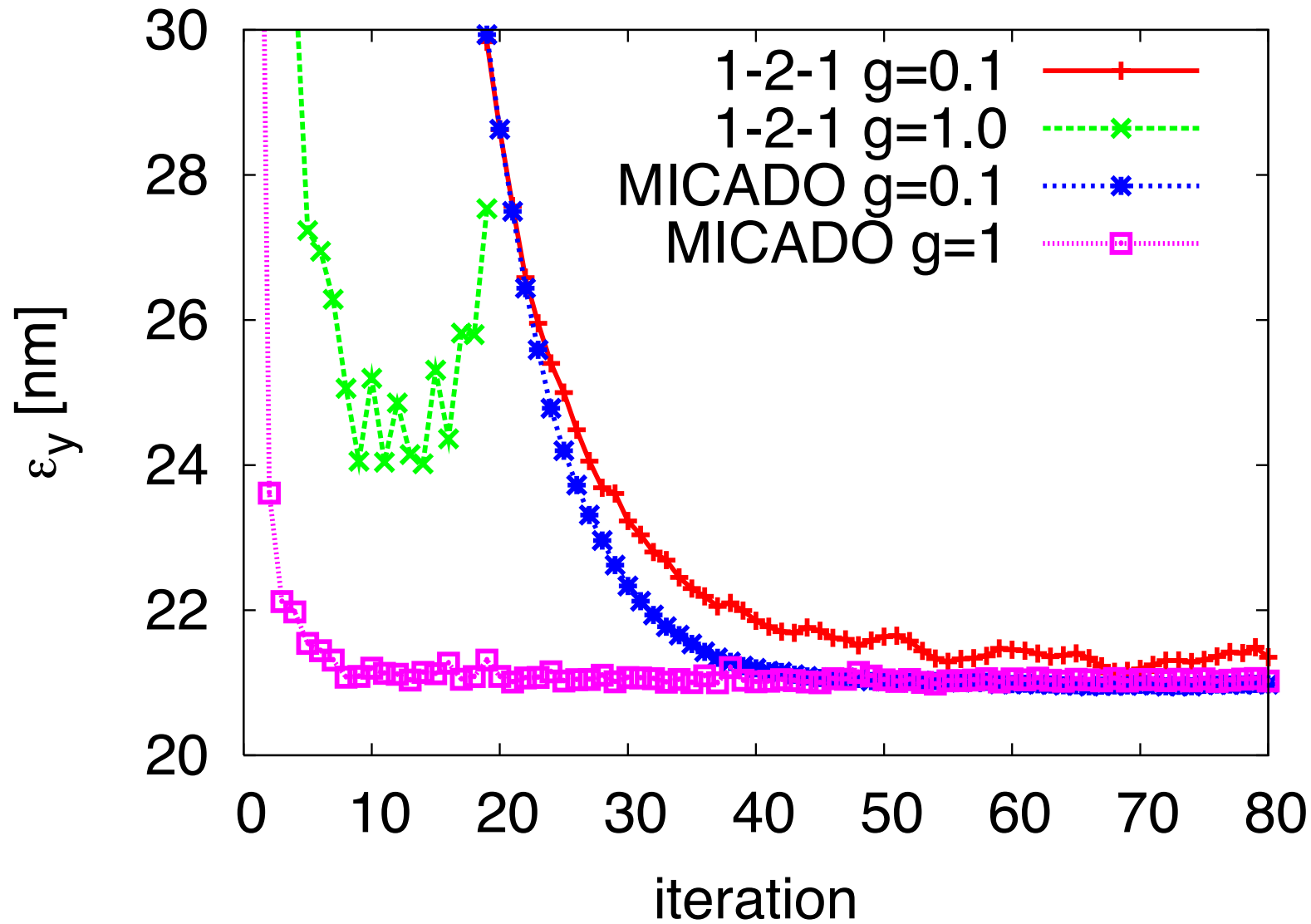
- $\sigma_{correctorscale} = 0.1$

- $\Delta_{corrector} = 0.1\mu m$

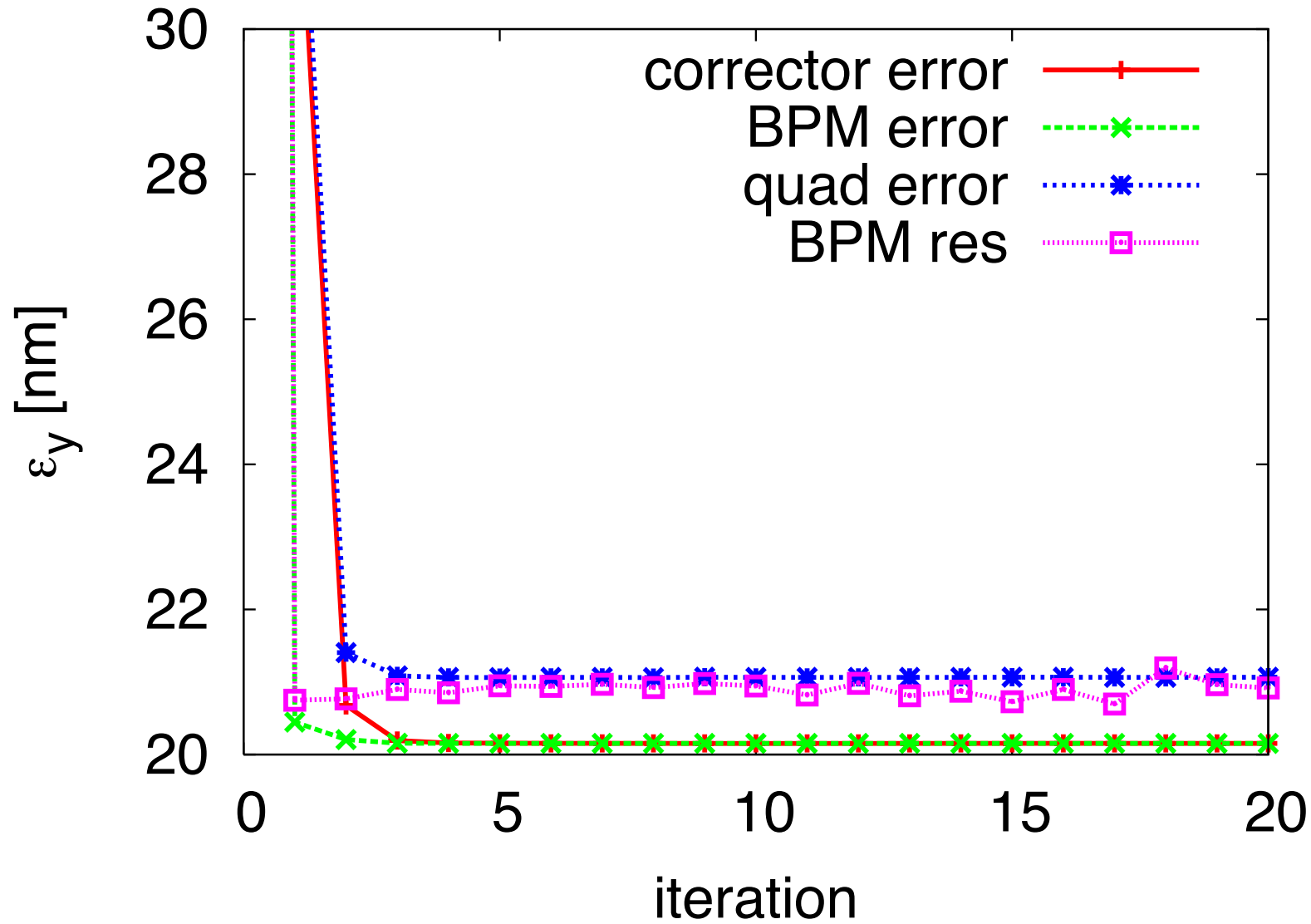
- $\sigma_{BPMres} = 1\mu m$

- ATL ground motion assumed for $3 \times 10^6 s$ with $A = 0.5 \times 10^{-6} \mu m/s/m$
- For MICADO 10 correctors are used
- For one-to-one correction all correctors are used (can be improved)

Results



One-To-One Results (BPM resolution $10\mu m$)



Preliminary Conclusion

- MICADO or one-to-one correction can also work
 - It seems that MICADO can converge faster
 - The final emittance is dominated by the quadrupole scale error
 - part of that will be handled by dispersion steering
- ⇒ needs closer look