

# Update on CMS stray field

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Contribution from Frank Schmidt

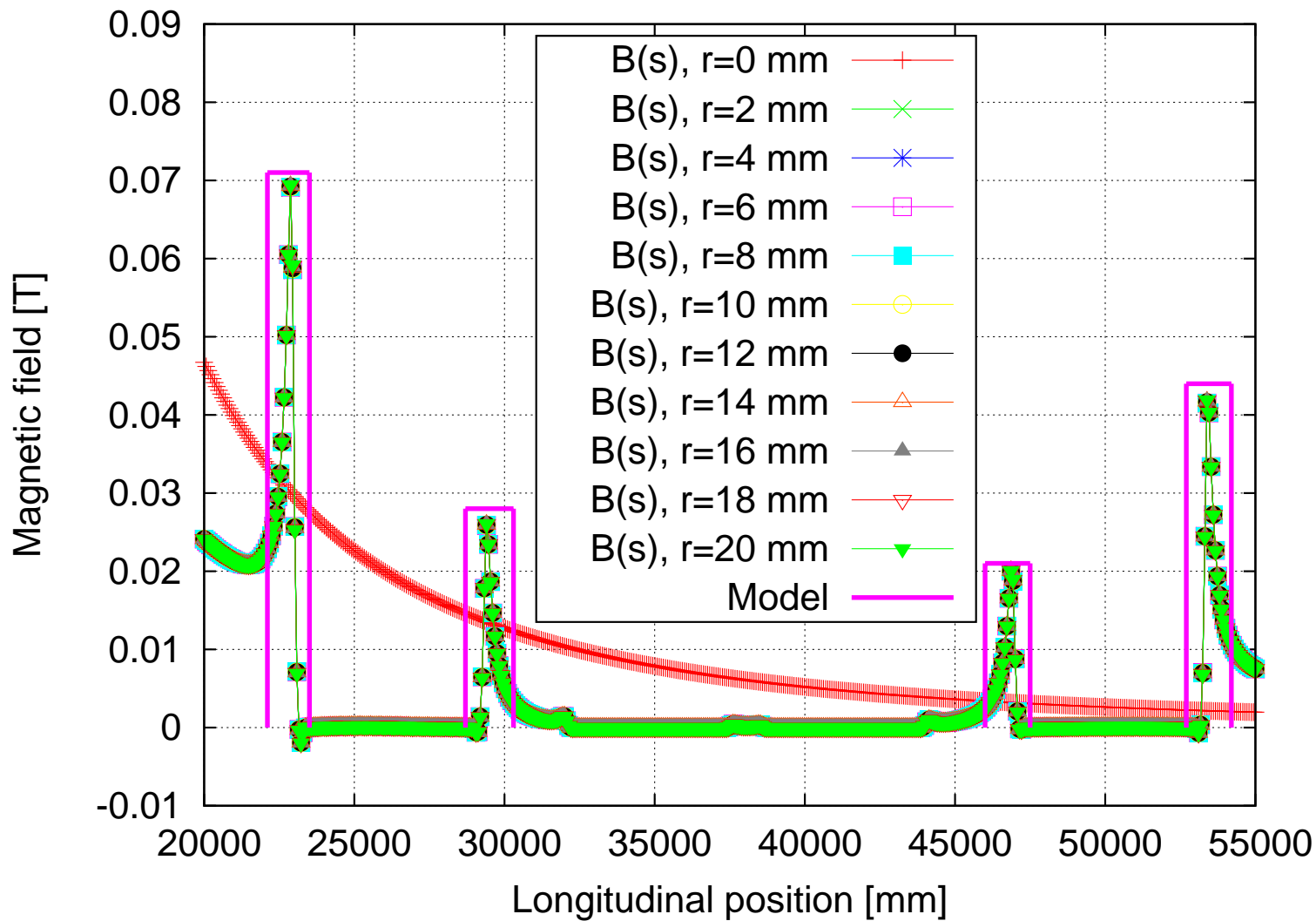
Thanks to Rogelio Tomás, Stephan Russenschuck, Bernhard Auchmann

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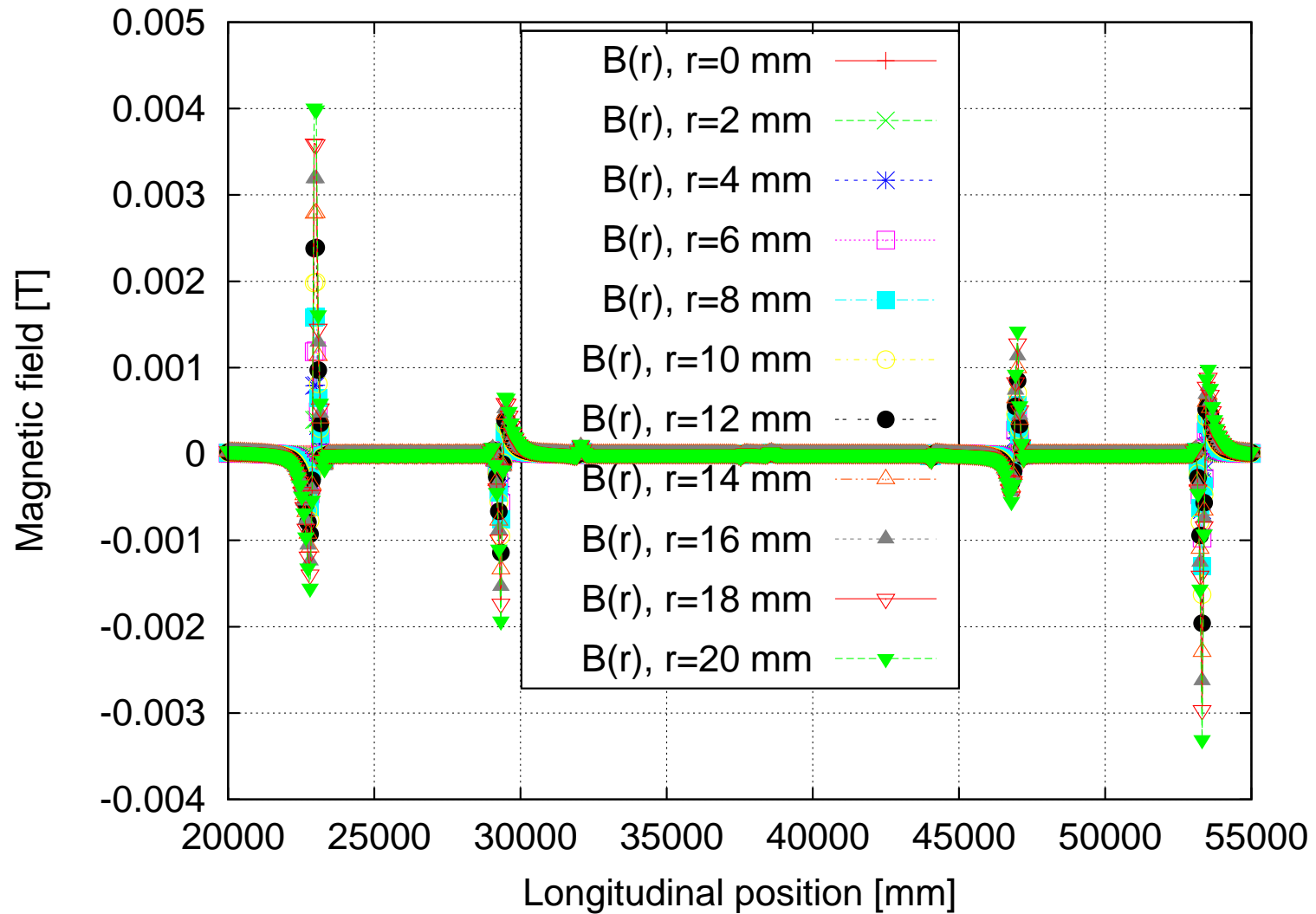
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- CMS simulated field (B. Auchmann)
- Solenoid in c6t (MADX to SixTrack)
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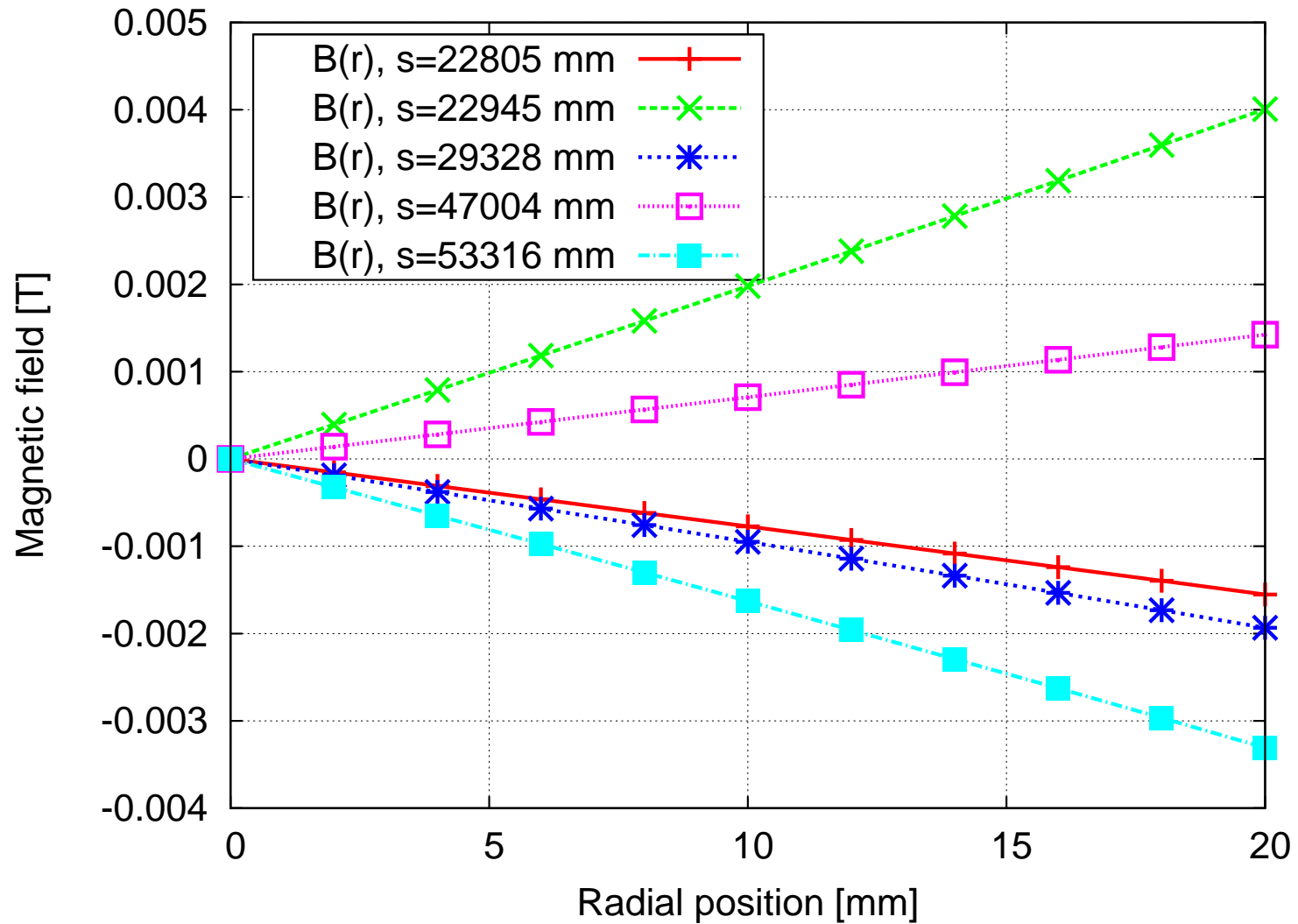
# CMS simulated field: longitudinal



# CMS simulated field: radial (1)



# CMS simulated field: radial (2)



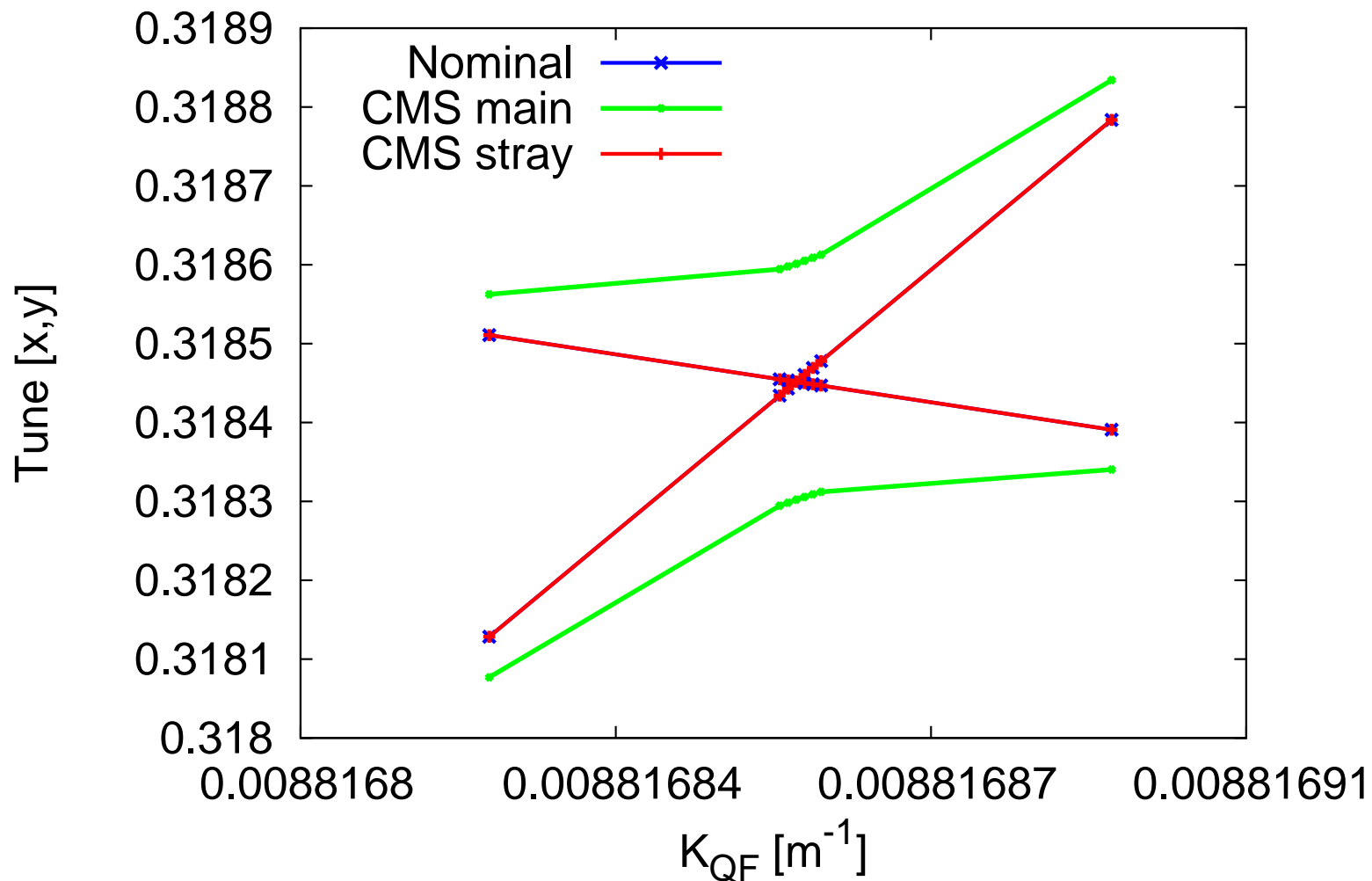
# Solenoid in c6t

- Added and checked
- Element type 25 in SixTrack
- solecms: SOLENOID, L=0, KS=1.716e-4, KSI=1.89e-3;
- solecms 25 1.716e-04 1.89e-03 0

# Solenoid in SixTrack

- G. Ripken and F. Schmidt, CERN/SL/95-12
- Added and debugged for tracking routines + tune routines (FOX)
- Pure solenoid
- Pure solenoid + fringe field (linear)

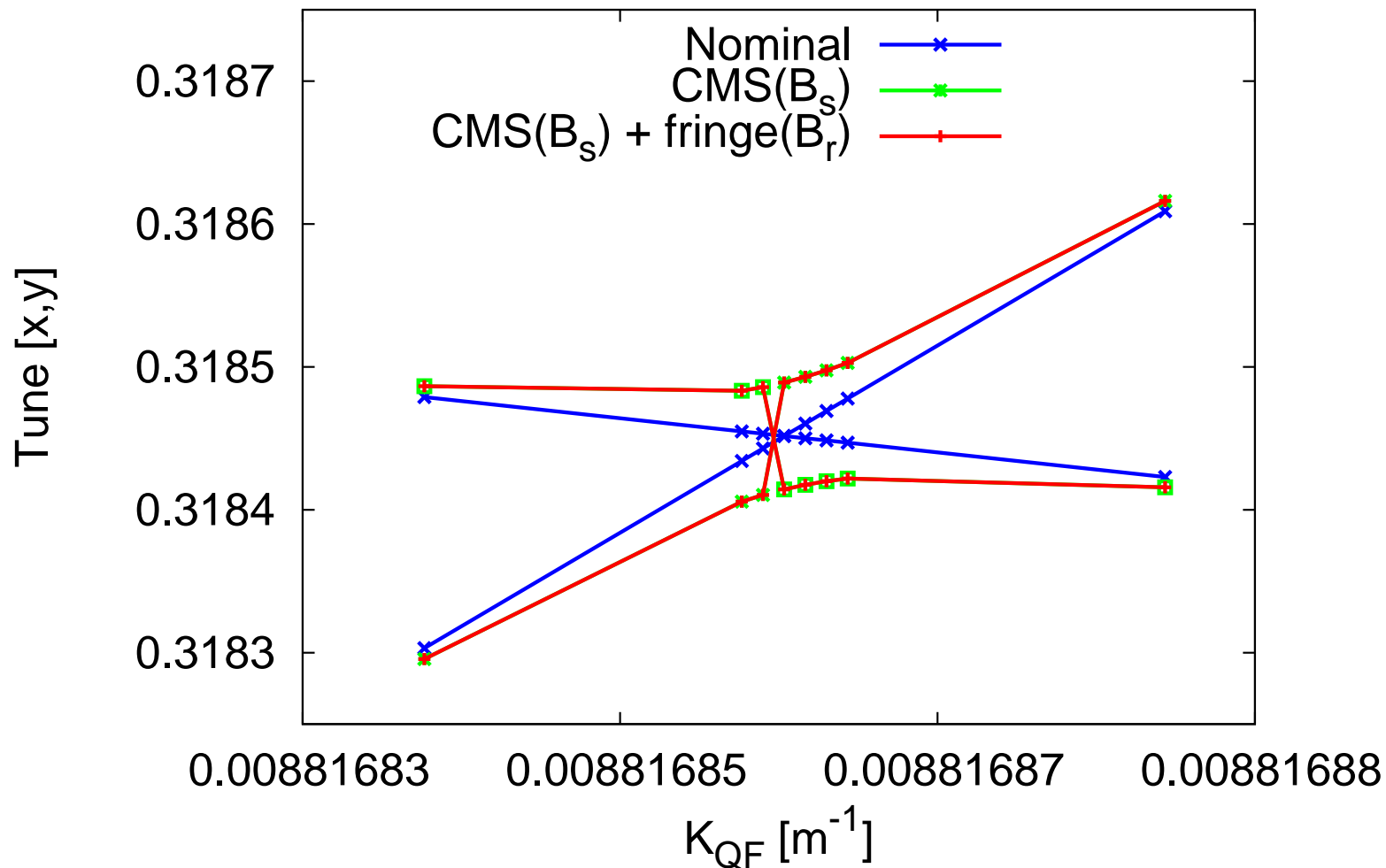
# Coupling (1): MADX



Coupling strength:  $2.99E-4$  (main);  $2.7E-5$  (stray)

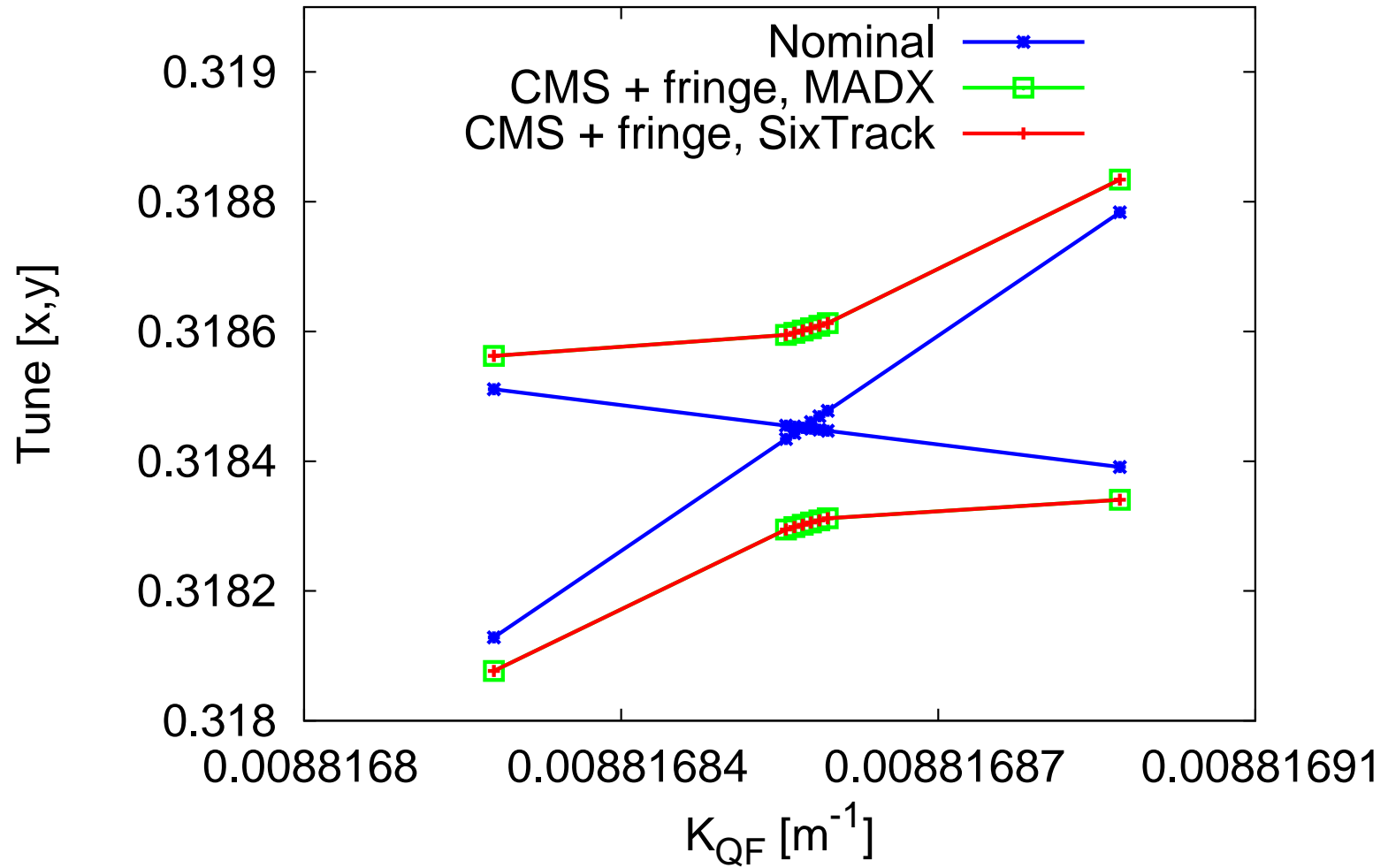


# Coupling (2): SixTrack

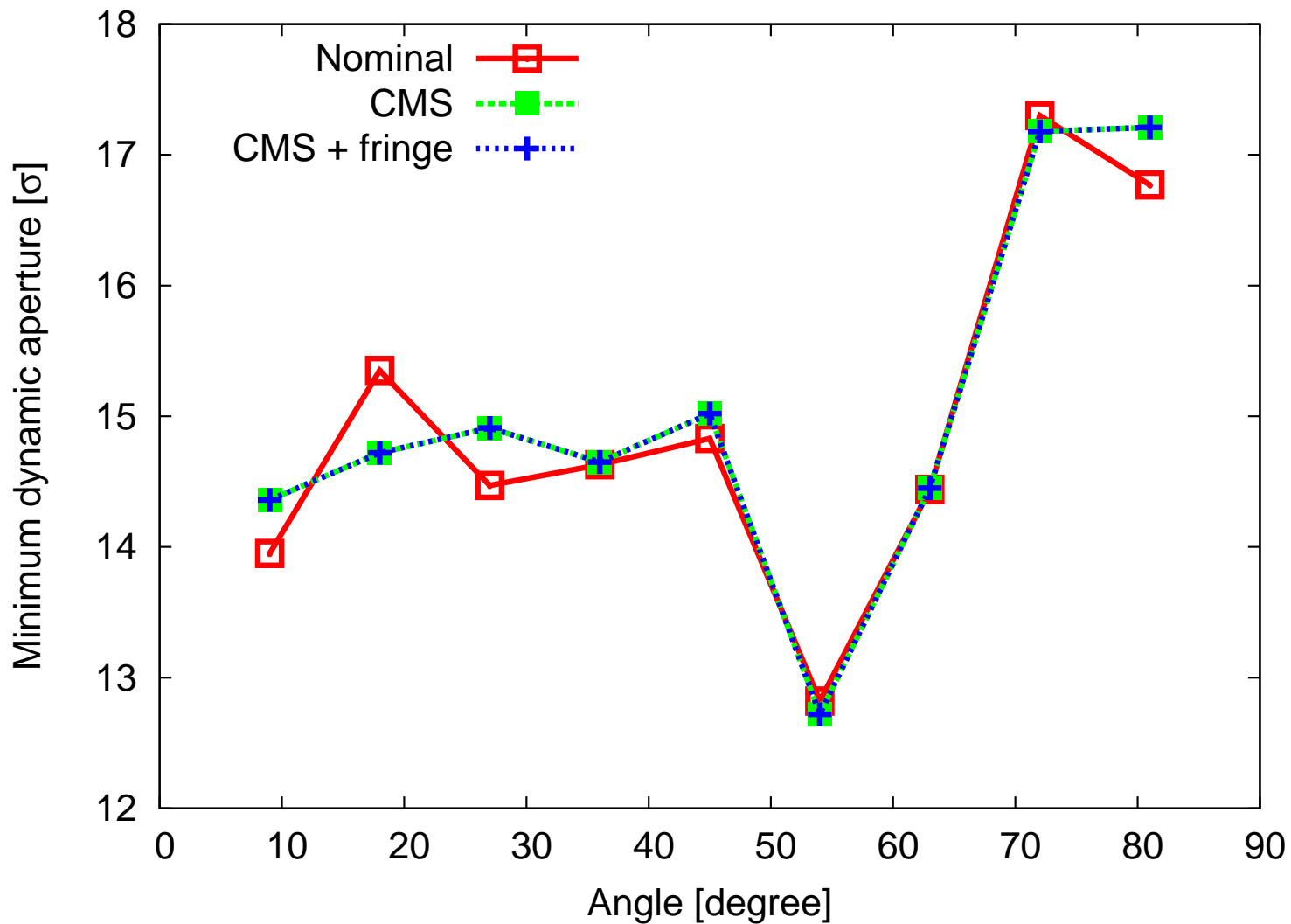


Coupling strength:  $2.99E-4$  (main; or main+fringe)

# Coupling (3): comparison

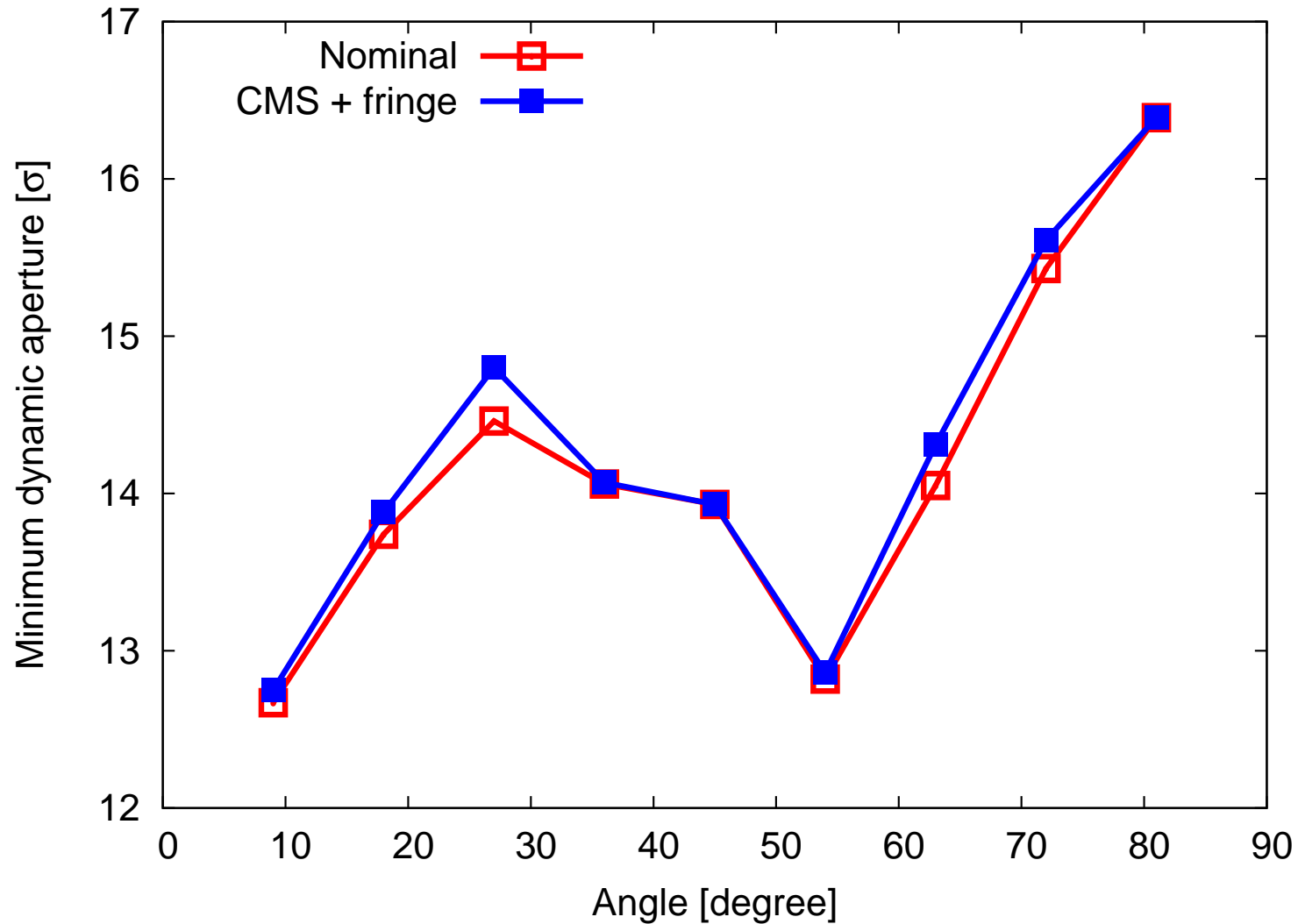


# Short term DA, 1k turns



Minimum 60 seeds. Small difference.

# Long term DA, 100k turns



Minimum 60 seeds. Almost the same.