

Nonlinear chrom correction with beam response matrix

(session 4: May 2, 2007)

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1. Summary of this session
2. Status of this experiment

Summary of this session

1) Beam time: ~2.0hrs of Blue store

2) What had been done:

- measure Blue nonlinear chrom response matrix twice
- Apply once correction based on analytical response matrix

3) Data analyzed

- difference between measurement and perdication
- One bug found in the correction code
(*The applied correction strengths are doubled.*)

from analytical calculation

Jacobian matrix:

-0.125835	-0.0156215	-0.122555	-0.0168059	-0.118389	-0.0164271	-0.125732	-0.0160806
0.0274392	0.0599086	0.026729	0.0705708	0.0263401	0.0646785	0.0269087	0.0654366
-0.062045	-0.00783464	-0.0612055	-0.0080958	-0.0606243	-0.0080968	-0.0613364	-0.00803879
0.0136106	0.031437	0.0134718	0.0331577	0.0133731	0.032389	0.0134972	0.0326616
0.0612718	0.00794893	0.0619734	0.00767374	0.0646226	0.00787219	0.0573131	0.00807546
-0.0136291	-0.0353317	-0.0140064	-0.0292871	-0.0137678	-0.0324464	-0.013608	-0.0326135
0.122628	0.0160626	0.125494	0.0150972	0.134578	0.015554	0.109828	0.0162487
-0.0275179	-0.0756094	-0.0288917	-0.0550103	-0.027999	-0.0649422	-0.0273055	-0.0653056

from beam-based measurement

A matrix:

-0.1629	-0.03605	-0.1508	-0.01645	-0.176	-0.0322	-0.2058	0.0219
0.03535	0.1107	0.0329	0.10965	0.03535	0.11315	0.0329	0.1084
-0.107	-0.00915	-0.1111	-0.01805	-0.1015	-0.0192	-0.0862	-0.0142
0.02405	0.0571	0.0259	0.04985	0.01655	0.06385	0.0066	0.0513
0.0956	0.02195	0.09	0.01535	0.1132	0.0108	0.0668	0.0098
-0.02765	-0.0657	-0.0219	-0.04915	-0.03595	-0.06365	-0.0225	-0.0588
0.1902	0.03365	0.1892	0.01775	0.2053	0.0228	0.1276	0.0107
-0.04425	-0.1276	-0.0384	-0.07835	-0.03865	-0.10135	-0.034	-0.0974

A matrix:

-0.2084	-0.1319	-0.1161	-0.0107	-0.1647	0.02265	-0.13785	-0.0157
0.03695	0.1033	0.04125	0.0977	0.04735	-0.09135	0.02	0.0983
-0.1164	-0.0336	-0.0258	-0.008	-0.0675	0.00905	-0.05595	-0.0129
0.01725	0.0574	0.02285	0.0411	0.02495	-0.04655	0.0104	0.0473
0.0961	0.0067	0.1926	0.0108	0.1173	-0.01065	0.07765	0.0153
-0.02375	-0.0758	-0.02935	-0.0567	-0.02775	0.07665	-0.0209	-0.0732
0.1739	0.0108	-0.0935	0.0108	0.1173	-0.01065	0.07765	0.0153
-0.03625	-0.1219	-0.09655	-0.0567	-0.02775	0.07665	-0.0209	-0.0732

Status of this experiment

1) 4 sessions :

April 04 (2hrs) / April 10 (2hrs)

April 24 (3hrs) / May 02(2hrs)

the first 2 sessions went to operational Q" corr.
nothing to do with response matrix

2) Plan:

Need **2** more sessions to evaluate (close) this experiment

(*does it work or not ? If works, operational or not ?*)

Next session, try correction again
better with Yellow ring.