

| A_all Beta2<br>of C runs | dA_all Beta2 | C runs      | A_Q          | sign of<br>A_beta2*A_q | Run   | A_unpol Q norm | A_LT   | A_unpol norm+LT |
|--------------------------|--------------|-------------|--------------|------------------------|-------|----------------|--------|-----------------|
|                          |              |             |              |                        |       |                |        |                 |
| 1.78%                    | 2.47%        | Carbon      | -1.28%       | -1                     | 72205 | 3.05%          | 97.86% | -97.72%         |
| 0.02%                    | 0.14%        | Carbon      | -0.06%       | -1                     | 72206 | 0.08%          | 97.71% | -97.71%         |
| 0.14%                    | 0.06%        | C+He        | 0.04%        | 1                      | 72287 | 0.10%          | 0.00%  | 0.09%           |
| 0.09%                    | 0.06%        | C+He        | 0.04%        | 1                      | 72288 | 0.04%          | 0.03%  | 0.01%           |
| 0.21%                    | 0.15%        | C+He        | 0.05%        | 1                      | 72289 | 0.16%          | 0.00%  | 0.16%           |
| 0.19%                    | 0.07%        | Carbon      | 0.05%        | 1                      | 72290 | 0.14%          | 0.01%  | 0.13%           |
| 0.05%                    | 0.09%        | Carbon      | 0.05%        | 1                      | 72291 | 0.00%          | -0.03% | 0.03%           |
| 0.11%                    | 0.07%        | C+He        | -0.02%       | -1                     | 72341 | 0.13%          | 0.00%  | 0.13%           |
| 0.06%                    | 0.07%        | C+He        | -0.03%       | -1                     | 72342 | 0.09%          | -0.01% | 0.09%           |
| -0.08%                   | 0.18%        | C+He        | -0.02%       | 1                      | 72343 | -0.07%         | -0.21% | 0.14%           |
| -0.05%                   | 0.14%        | C+He        | -0.01%       | 1                      | 72344 | -0.04%         | -0.04% | 0.00%           |
| 0.00%                    | 0.14%        | C+He        | -0.02%       | 1                      | 72345 | 0.02%          | -0.01% | 0.03%           |
| 0.33%                    | 0.40%        | C+He        | -0.05%       | -1                     | 72346 | 0.38%          | -0.46% | 0.83%           |
| -0.06%                   | 0.11%        | C+He        | -0.03%       | 1                      | 72347 | -0.02%         | -0.06% | 0.03%           |
| -0.06%                   | 0.19%        | C+He        | -0.04%       | 1                      | 72348 | -0.01%         | -0.09% | 0.07%           |
| -0.20%                   | 0.12%        | Carbon      | -0.06%       | 1                      | 72375 | -0.14%         | 0.02%  | -0.16%          |
| 0.16%                    | 0.13%        | Carbon      | -0.06%       | -1                     | 72377 | 0.22%          | -0.06% | 0.28%           |
| -0.26%                   | 0.07%        | Carbon      | -0.08%       | 1                      | 72380 | -0.18%         | 0.00%  | -0.18%          |
| -0.33%                   | 0.07%        | Carbon      | -0.07%       | 1                      | 72381 | -0.26%         | 0.02%  | -0.27%          |
| -0.15%                   | 0.11%        | Carbon      | -0.10%       | 1                      | 72435 | -0.05%         | 0.04%  | -0.09%          |
| -0.23%                   | 0.08%        | Carbon      | -0.10%       | 1                      | 72436 | -0.13%         | 0.05%  | -0.18%          |
| -0.19%                   | 0.08%        | C+He        | -0.10%       | 1                      | 72442 | -0.09%         | -0.06% | -0.03%          |
| -0.27%                   | 0.10%        | C+He        | -0.10%       | 1                      | 72697 | -0.17%         | -0.12% | -0.05%          |
| -0.07%                   | 0.09%        | C+He        | -0.10%       | 1                      | 72698 | 0.04%          | -0.12% | 0.16%           |
| -0.17%                   | 0.05%        | C+He        | -0.09%       | 1                      | 72705 | -0.08%         | -0.08% | 0.00%           |
| -0.13%                   | 0.07%        | Carbon      | -0.09%       | 1                      | 72754 | -0.04%         | -0.25% | 0.21%           |
| -0.18%                   | 0.09%        | Carbon      | -0.10%       | 1                      | 72782 | -0.08%         | -0.18% | 0.10%           |
| -0.88%                   | 0.52%        | Carbon      | -0.06%       | 1                      | 72912 | -0.82%         | 0.47%  | -1.29%          |
| 0.05%                    | 0.12%        | C+He        | -0.03%       | -1                     | 72937 | 0.08%          | 0.03%  | 0.05%           |
| 0.13%                    | 0.14%        | Carbon      | -0.03%       | -1                     | 72940 | 0.15%          | 0.12%  | 0.03%           |
| -0.22%                   | 0.28%        | C+He        | -0.03%       | 1                      | 72952 | -0.20%         | 0.16%  | -0.35%          |
| 0.05%                    | 0.14%        | Carbon      | -0.04%       | -1                     | 72953 | 0.08%          | 0.07%  | 0.01%           |
| 0.06%                    | 0.22%        | Carbon      | -0.04%       | -1                     | 72954 | 0.10%          | -0.04% | 0.14%           |
| -0.14%                   | 0.12%        | Carbon      | -0.05%       | 1                      | 72955 | -0.09%         | 0.02%  | -0.11%          |
| -0.42%                   | 0.14%        | C+He        | -0.08%       | 1                      | 72970 | -0.34%         | 0.00%  | -0.34%          |
| -0.02%                   | 0.18%        | C+He        | -0.07%       | 1                      | 72971 | 0.06%          | -0.01% | 0.07%           |
| -0.72%                   | 0.18%        | C+He        | -0.08%       | 1                      | 72972 | -0.65%         | 0.10%  | -0.74%          |
| -0.09%                   | 0.09%        | C+He        | -0.02%       | 1                      | 72993 | -0.07%         | 0.02%  | -0.09%          |
| 0.02%                    | 0.10%        | Carbon      | -0.02%       | -1                     | 72994 | 0.03%          | 0.04%  | -0.01%          |
| 0.11%                    | 0.10%        | Carbon      | -0.01%       | -1                     | 72995 | 0.12%          | 0.05%  | 0.07%           |
| -0.22%                   | 0.17%        | C+He        | -0.06%       | 1                      | 73006 | -0.16%         | 0.04%  | -0.20%          |
| -0.18%                   | 0.13%        | C+He        | -0.05%       | 1                      | 73008 | -0.13%         | 0.08%  | -0.21%          |
| 0.06%                    | 0.11%        | C+He        | -0.05%       | -1                     | 73009 | 0.11%          | 0.08%  | 0.03%           |
| 0.00%                    | 0.11%        | C+He        | -0.03%       | 1                      | 73026 | 0.03%          | 0.08%  | -0.05%          |
| -0.06%                   | 0.14%        | Carbon      | -0.03%       | 1                      | 73027 | -0.03%         | 0.02%  | -0.05%          |
|                          |              |             | N(-1)        | 11                     |       |                |        |                 |
|                          |              |             | N(1)         | 32                     |       |                |        |                 |
| <A_Q>                    | -0.043%      | (from BCM1) |              |                        |       |                |        |                 |
| < A_Q >                  | 0.053%       | Non-NH3     | <A_Beta2>    | -0.058%                | +/-   | 0.015%         |        |                 |
|                          |              |             | Q normalized | -0.019%                | +/-   | 0.015%         |        |                 |
|                          |              |             | With LT      | 0.000%                 | +/-   | 0.015%         |        |                 |

Shaded runs were used in previous study: <A\_Beta2> -0.15% +/- 0.06%

Excluded runs

With swapped helicity labels LT based on h+ LT correct first?  
Y N

Model LT h+ c in c\*T - T+  
Y 0.985717

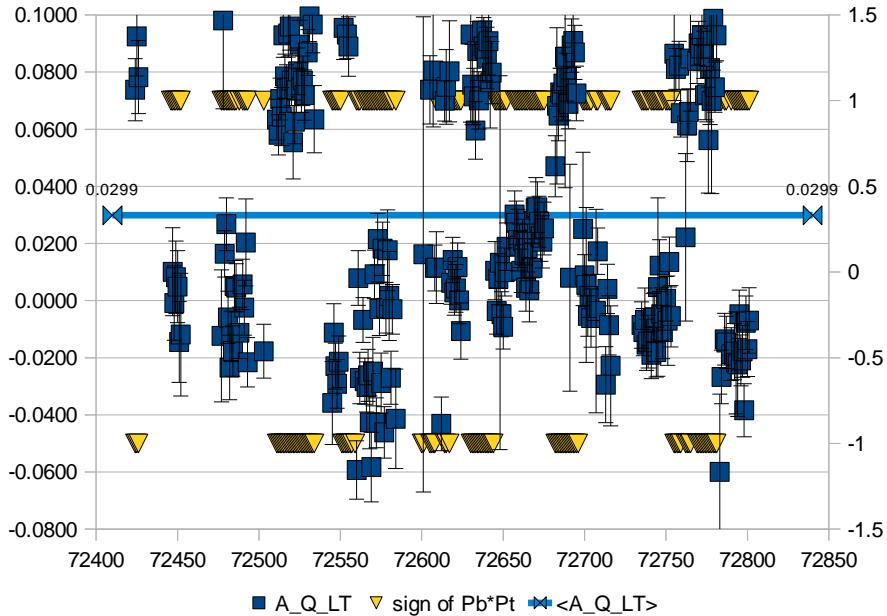
| A_all Beta2<br>of C runs | dA_all Beta2 | C runs            |         | sign of<br>A_beta2*A_q | Run    | A_unpol Q norm | A_LT   | A_unpol norm+LT |
|--------------------------|--------------|-------------------|---------|------------------------|--------|----------------|--------|-----------------|
| 1.78%                    | 2.47%        | Carbon            | -1.28%  | -1                     | 72205  | 3.05%          | 97.86% | -97.72%         |
| 0.02%                    | 0.14%        | Carbon            | -0.06%  | -1                     | 72206  | 0.08%          | 97.71% | -97.70%         |
| 0.14%                    | 0.06%        | C+He              | 0.04%   | 1                      | 72287  | 0.10%          | -0.05% | 0.14%           |
| 0.09%                    | 0.06%        | C+He              | 0.04%   | 1                      | 72288  | 0.04%          | -0.02% | 0.06%           |
| 0.21%                    | 0.15%        | C+He              | 0.05%   | 1                      | 72289  | 0.16%          | -0.04% | 0.21%           |
| 0.19%                    | 0.07%        | Carbon            | 0.05%   | 1                      | 72290  | 0.14%          | -0.04% | 0.17%           |
| 0.05%                    | 0.09%        | Carbon            | 0.05%   | 1                      | 72291  | 0.00%          | -0.08% | 0.08%           |
| 0.11%                    | 0.07%        | C+He              | -0.02%  | -1                     | 72341  | 0.13%          | -0.04% | 0.17%           |
| 0.06%                    | 0.07%        | C+He              | -0.03%  | -1                     | 72342  | 0.09%          | -0.06% | 0.14%           |
| -0.08%                   | 0.18%        | C+He              | -0.02%  | 1                      | 72343  | -0.07%         | -0.26% | 0.19%           |
| -0.05%                   | 0.14%        | C+He              | -0.01%  | 1                      | 72344  | -0.04%         | -0.09% | 0.05%           |
| 0.00%                    | 0.14%        | C+He              | -0.02%  | 1                      | 72345  | 0.02%          | -0.05% | 0.08%           |
| 0.33%                    | 0.40%        | C+He              | -0.05%  | -1                     | 72346  | 0.38%          | -0.50% | 0.88%           |
| -0.06%                   | 0.11%        | C+He              | -0.03%  | 1                      | 72347  | -0.02%         | -0.11% | 0.08%           |
| -0.06%                   | 0.19%        | C+He              | -0.04%  | 1                      | 72348  | -0.01%         | -0.13% | 0.12%           |
| -0.20%                   | 0.12%        | Carbon            | -0.06%  | 1                      | 72375  | -0.14%         | -0.03% | -0.11%          |
| 0.16%                    | 0.13%        | Carbon            | -0.06%  | -1                     | 72377  | 0.22%          | -0.10% | 0.32%           |
| -0.26%                   | 0.07%        | Carbon            | -0.08%  | 1                      | 72380  | -0.18%         | -0.05% | -0.13%          |
| -0.33%                   | 0.07%        | Carbon            | -0.07%  | 1                      | 72381  | -0.26%         | -0.03% | -0.23%          |
| -0.15%                   | 0.11%        | Carbon            | -0.10%  | 1                      | 72435  | -0.05%         | -0.01% | -0.04%          |
| -0.23%                   | 0.08%        | Carbon            | -0.10%  | 1                      | 72436  | -0.13%         | 0.00%  | -0.13%          |
| -0.19%                   | 0.08%        | C+He              | -0.10%  | 1                      | 72442  | -0.09%         | -0.11% | 0.02%           |
| -0.27%                   | 0.10%        | C+He              | -0.10%  | 1                      | 72697  | -0.17%         | -0.17% | 0.00%           |
| -0.07%                   | 0.09%        | C+He              | -0.10%  | 1                      | 72698  | 0.04%          | -0.17% | 0.20%           |
| -0.17%                   | 0.05%        | C+He              | -0.09%  | 1                      | 72705  | -0.08%         | -0.13% | 0.05%           |
| -0.13%                   | 0.07%        | Carbon            | -0.09%  | 1                      | 72754  | -0.04%         | -0.30% | 0.26%           |
| -0.18%                   | 0.09%        | Carbon            | -0.10%  | 1                      | 72782  | -0.08%         | -0.23% | 0.15%           |
| -0.88%                   | 0.52%        | Carbon            | -0.06%  | 1                      | 72912  | -0.82%         | 0.42%  | -1.24%          |
| 0.05%                    | 0.12%        | C+He              | -0.03%  | -1                     | 72937  | 0.08%          | -0.02% | 0.10%           |
| 0.13%                    | 0.14%        | Carbon            | -0.03%  | -1                     | 72940  | 0.15%          | 0.08%  | 0.08%           |
| -0.22%                   | 0.28%        | C+He              | -0.03%  | 1                      | 72952  | -0.20%         | 0.11%  | -0.30%          |
| 0.05%                    | 0.14%        | Carbon            | -0.04%  | -1                     | 72953  | 0.08%          | 0.02%  | 0.06%           |
| 0.06%                    | 0.22%        | Carbon            | -0.04%  | -1                     | 72954  | 0.10%          | -0.09% | 0.19%           |
| -0.14%                   | 0.12%        | Carbon            | -0.05%  | 1                      | 72955  | -0.09%         | -0.03% | -0.06%          |
| -0.42%                   | 0.14%        | C+He              | -0.08%  | 1                      | 72970  | -0.34%         | -0.05% | -0.29%          |
| -0.02%                   | 0.18%        | C+He              | -0.07%  | 1                      | 72971  | 0.06%          | -0.06% | 0.12%           |
| -0.72%                   | 0.18%        | C+He              | -0.08%  | 1                      | 72972  | -0.65%         | 0.05%  | -0.69%          |
| -0.09%                   | 0.09%        | C+He              | -0.02%  | 1                      | 72993  | -0.07%         | -0.03% | -0.04%          |
| 0.02%                    | 0.10%        | Carbon            | -0.02%  | -1                     | 72994  | 0.03%          | 0.00%  | 0.04%           |
| 0.11%                    | 0.10%        | Carbon            | -0.01%  | -1                     | 72995  | 0.12%          | 0.00%  | 0.12%           |
| -0.22%                   | 0.17%        | C+He              | -0.06%  | 1                      | 73006  | -0.16%         | -0.01% | -0.16%          |
| -0.18%                   | 0.13%        | C+He              | -0.05%  | 1                      | 73008  | -0.13%         | 0.03%  | -0.16%          |
| 0.06%                    | 0.11%        | C+He              | -0.05%  | -1                     | 73009  | 0.11%          | 0.03%  | 0.08%           |
| 0.00%                    | 0.11%        | C+He              | -0.03%  | 1                      | 73026  | 0.03%          | 0.03%  | 0.00%           |
| -0.06%                   | 0.14%        | Carbon            | -0.03%  | 1                      | 73027  | -0.03%         | -0.03% | 0.00%           |
|                          |              |                   | N(-1)   | 11                     |        |                |        |                 |
|                          |              |                   | N(1)    | 32                     |        |                |        |                 |
| <A_Q>                    | -0.043%      | (from BCM1)       |         |                        |        |                |        |                 |
| < A_Q >                  | 0.053%       | Non-NH3 <A_Beta2> | -0.058% | +/-                    | 0.015% |                |        |                 |
|                          |              | Q normalized      | -0.019% | +/-                    | 0.015% |                |        |                 |
|                          |              | With LT           | 0.049%  | +/-                    | 0.015% |                |        |                 |

Shaded runs were used in previous study: <A\_Beta2> -0.15% +/- 0.06%

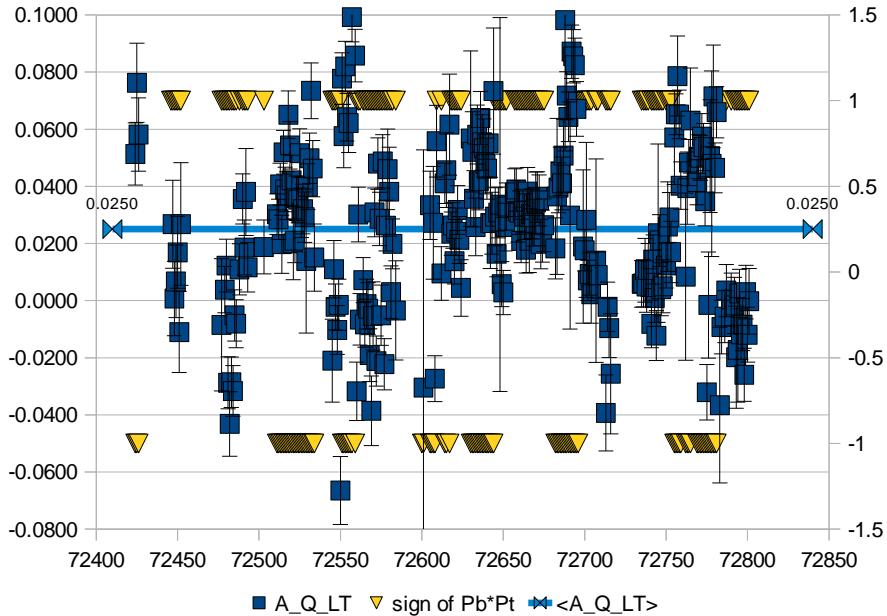
## Excluded runs

With swapped helicity labels LT based on h+ LT correct first?  
Y N

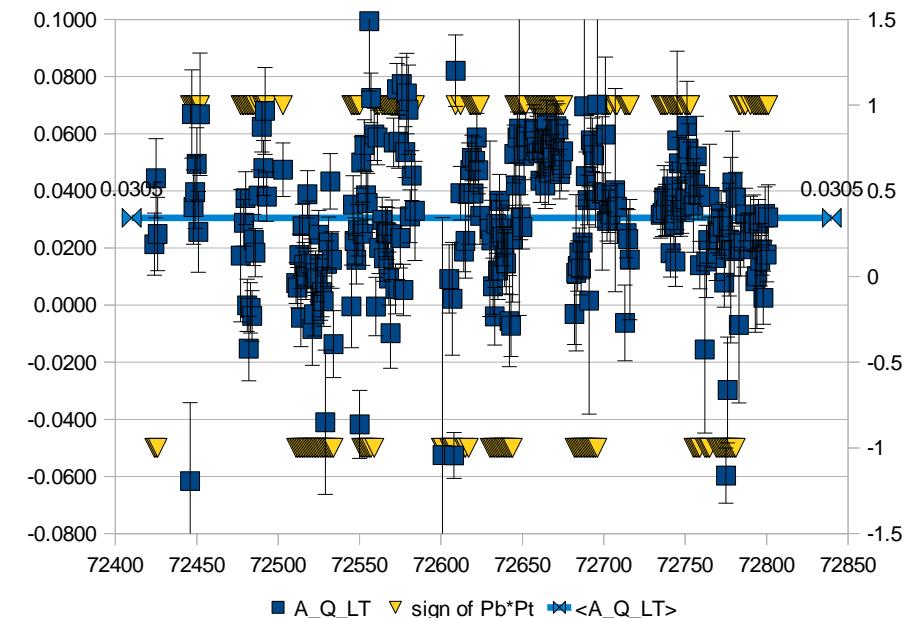
Model LT h+ c in c\*T - T+  
Y 0.985238



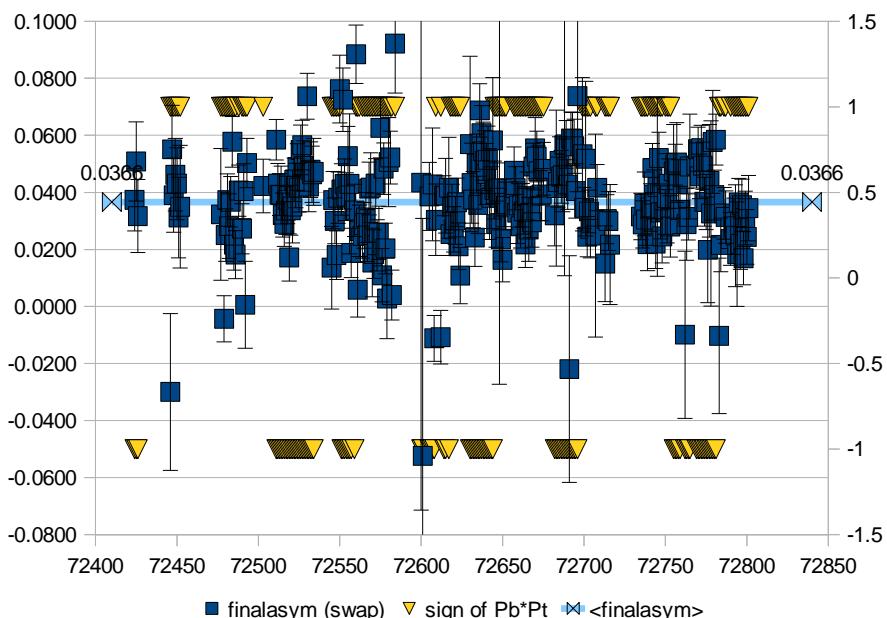
No LT or A\_false, charge norm, no swap



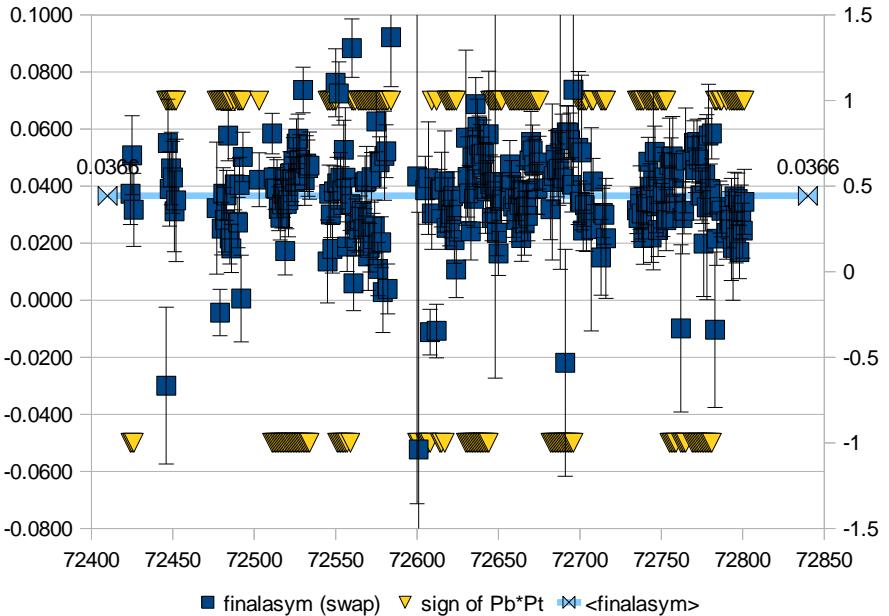
LT 538 h+, no A\_false, charge norm, no swap



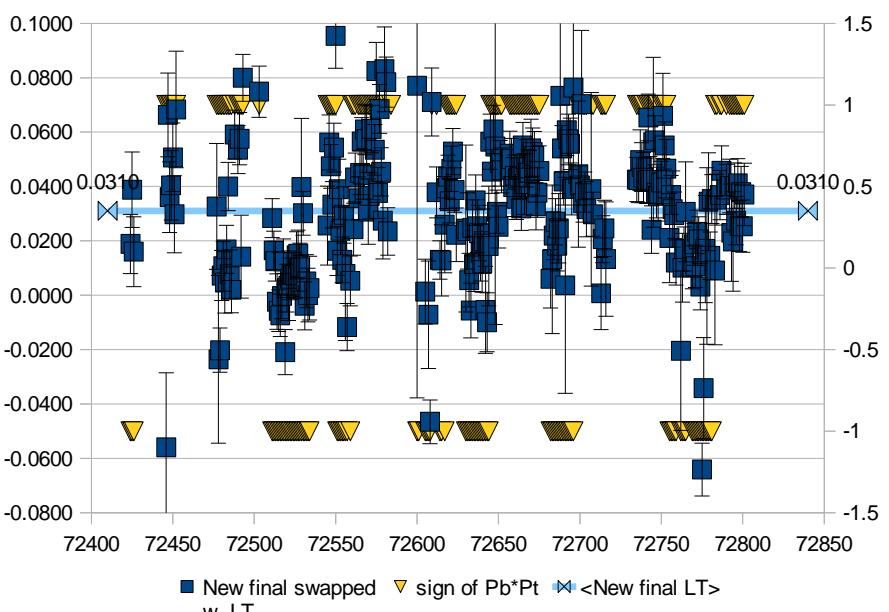
LT 538 h+, A\_false = 0.18%, charge norm, no swap



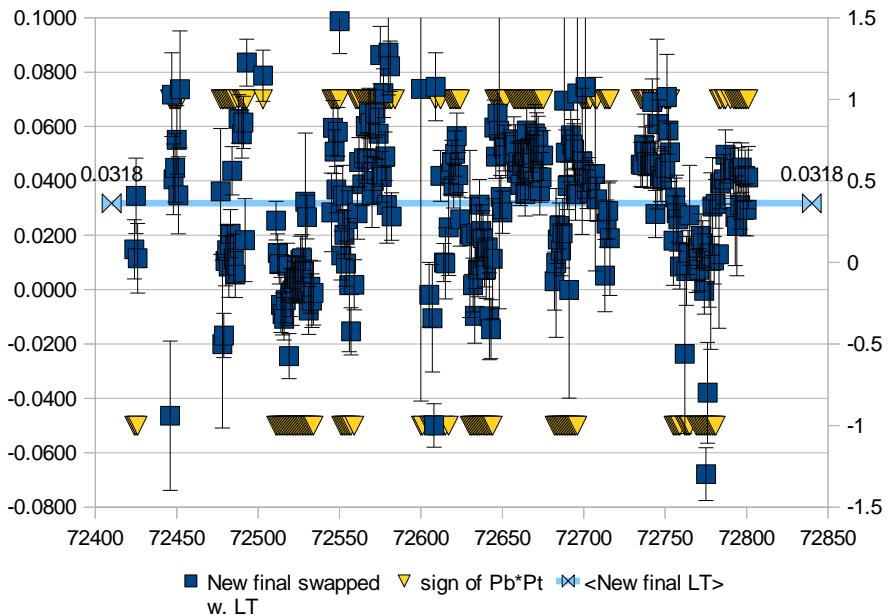
No LT or A\_false charge norm, swap



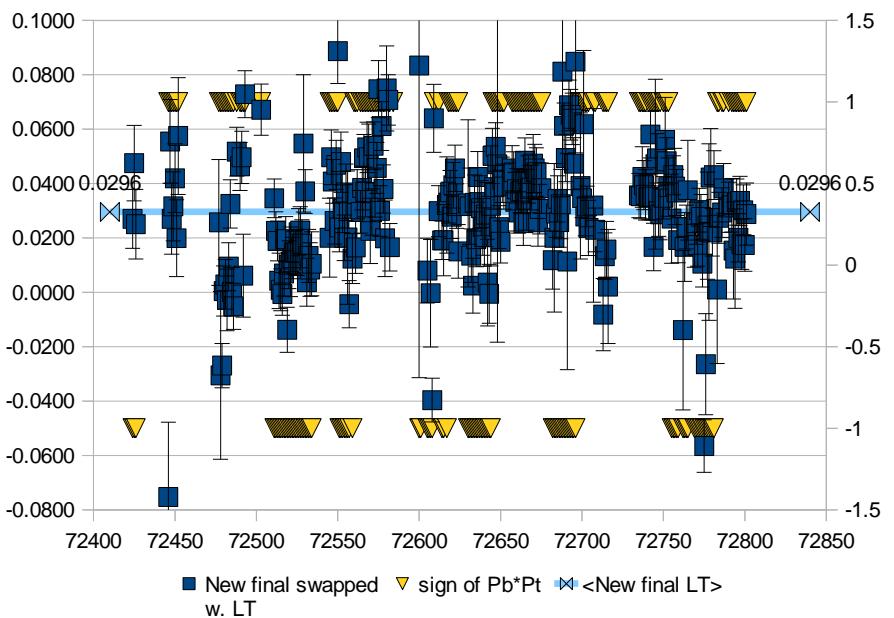
No LT or  $A_{\text{false}}$ , charge norm, swap



LT with 0.985238 (Hoyoung), no  $A_{\text{false}}$ , charge norm, swap



LT with 0.985, no  $A_{\text{false}}$ , charge norm, swap



LT 0.985717 (C optimum), no  $A_{\text{false}}$ , charge norm, swap