



# HPS Analysis Organization II: Task List

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HPS Collaboration Meeting

October 26, 2015

# Analysis Task List

<https://confluence.slac.stanford.edu/display/hpsg/Analysis+Tasks+Checklist>

- Identify the crucial pieces
  - for understanding the detector
  - things necessary for any publishable analysis
- Break them down into smallest bits reasonable
  - Ongoing; feedback welcome
- Solicit people to commit to being responsible for individual tasks
  - So far most tasks already have a name or two!
- Finishing each task requires documentation
  - Could be a single document per task (and not a list of links to previous slides)
    - or in a larger analysis note
  - Ideally a formal HPS-NOTE with source in github repository
- Follow up on these to the end in DAWG meetings (Fridays at 11 (JLab time))

# Analysis Task List

| Topic  | Subtopic                             | Person  | Doc Link |
|--|--------------------------------------|---------|----------|
| <input type="checkbox"/> Optimized Event Selection | <input type="checkbox"/> FEE         | Holly   |          |
|  |                                      | Matt S. |          |
|  | <input type="checkbox"/> Mollers     | Brad    |          |
|  |                                      | Omar    |          |
|  | <input type="checkbox"/> Tridents    | Omar    |          |
|  |                                      | Rafo    |          |
| <input type="checkbox"/> Kinematics vs MC          | <input type="checkbox"/> Mollers     | Omar    |          |
|  |                                      | Brad    |          |
|  | <input type="checkbox"/> Tridents    | Omar    |          |
|  |                                      | Rafo    |          |
|  | <input type="checkbox"/> FEE         | Holly   |          |
|  |                                      | Matt S. |          |
| Omar   |                                      |         |          |
| <input type="checkbox"/> Tracking Efficiency       | <input type="checkbox"/> FEE         | Omar    |          |
|  |                                      | Matt S. |          |
|  | <input type="checkbox"/> Mollers     | Omar    |          |
| <input type="checkbox"/> Trigger Efficiency        | <input type="checkbox"/> SSP         |         |          |
|  | <input type="checkbox"/> TI          |         |          |
| <input type="checkbox"/> Target Thickness          |                                      |         |          |
| <input type="checkbox"/> Beam Charge               | <input type="checkbox"/> Mya-Only    | Sho     |          |
|  | <input type="checkbox"/> Faraday Cup | Sebouh  |          |
| <input type="checkbox"/> Cluster-Track Matching    |                                      | Norman  |          |

| Topic  | Subtopic                                   | Person  | Doc Link |
|--|--|---------|----------|
| <input type="checkbox"/> Cross Sections                | <input type="checkbox"/> Moller            | Omar    |          |
|  | <input type="checkbox"/> FEE               | Matt S. |          |
|  |  | Sebouh  |          |
| <input type="checkbox"/> Tridents                      | Omar                                       |         |          |
|  | Rafo                                       |         |          |
| <input type="checkbox"/> Improvements from ECAL Energy | <input type="checkbox"/> Mollers           | Holly   |          |
|  |  | Brad    |          |
|  |  | Norman  |          |
| <input type="checkbox"/> FEE                           | Holly                                      |         |          |
|  | Norman                                     |         |          |
| <input type="checkbox"/> Tridents                      |  |         |          |
| <input type="checkbox"/> Junk Events Removal           |  |         |          |
| <input type="checkbox"/> Golden Run Selection          |  | Sho     |          |
|  |  | Norman  |          |
| <input type="checkbox"/> Signal Extraction             | <input type="checkbox"/> Bump-Hunt Fitting | Matt. G |          |
|  |  | Norman  |          |
| <input type="checkbox"/> Detached Vertex               |  |         |          |
|  |  |         |          |
| <input type="checkbox"/> Z-Vertex Resolution           | <input type="checkbox"/> Mollers           | Holly   |          |
|  |  | Norman  |          |
| <input type="checkbox"/> Tridents                      | Sho  |         |          |
|  | Norman                                     |         |          |
| <input type="checkbox"/> Beamspot Stability/Constraint |  | Nathan  |          |
| <input type="checkbox"/> Mass Resolution               |  | Nathan  |          |
| <input type="checkbox"/> Firmware Trigger Efficiency   | <input type="checkbox"/> SSP               | Kyle    |          |
|  |  |         |          |
| <input type="checkbox"/> TI                            |  | Kyle    |          |

# Analysis Task List

| Topic   | Subtopic                             | Person  | Doc Link |
|---|--------------------------------------|---------|----------|
| <input type="checkbox"/> Optimized Event Selection<br><br>square cuts, discriminants, fancier ...                 | <input type="checkbox"/> FEE         | Holly   |          |
|   |                                      | Matt S. |          |
|   | <input type="checkbox"/> Mollers     | Brad    |          |
|   |                                      | Omar    |          |
|   | <input type="checkbox"/> Tridents    | Omar    |          |
|   |                                      | Rafo    |          |
| <input type="checkbox"/> Kinematics vs MC validation<br><br>Moller mass<br>FEE rates,<br>Trident shapes (A' b.g.) | <input type="checkbox"/> Mollers     | Omar    |          |
|   |                                      | Brad    |          |
|   | <input type="checkbox"/> Tridents    | Omar    |          |
|   |                                      | Rafo    |          |
|   | <input type="checkbox"/> FEE         | Holly   |          |
|   |                                      | Matt S. |          |
| <input type="checkbox"/> Tracking Efficiency  | <input type="checkbox"/> FEE         | Omar    |          |
|   |                                      | Matt S. |          |
|   | <input type="checkbox"/> Mollers     | Omar    |          |
|   | <input type="checkbox"/> MC          |         |          |
| <input type="checkbox"/> Trigger Efficiency<br><br>trigger turn-on  | <input type="checkbox"/> SSP         |         |          |
|   | <input type="checkbox"/> TI          |         |          |
| <input type="checkbox"/> Target Thickness   |                                      |         |          |
| <input type="checkbox"/> Beam Charge  | <input type="checkbox"/> Mya-Only    | Sho     |          |
|   | <input type="checkbox"/> Faraday Cup | Sebouh  |          |
| <input type="checkbox"/> Cluster-Track Matching   |                                      | Norman  |          |

Many reports on these in analysis meetings over last few months,  
 \* and at this collaboration meeting \*

Cross-Section factors

# Analysis Task List

Many reports on Cross Sections in analysis meetings over last few months  
 \* and at this collaboration meeting \*

talks today/tomorrow

| Topic   | Subtopic                                   | Person                  | Doc Link |
|---|--|-------------------------|----------|
| <input type="checkbox"/> Cross Sections<br><i>efficiency / luminosity cross checks</i>                | <input type="checkbox"/> Moller            | Omar                    |          |
|   | <input type="checkbox"/> FEE               | Matt S.<br>Sebouh       |          |
|   | <input type="checkbox"/> Tridents          | Omar<br>Rafo            |          |
| <input type="checkbox"/> Improvements from ECAL Energy<br><i>e.g. mass resolution, B.H. rejection</i> | <input type="checkbox"/> Mollers           | Holly<br>Brad<br>Norman |          |
|   | <input type="checkbox"/> FEE               | Holly<br>Norman         |          |
|   | <input type="checkbox"/> Tridents          |                         |          |
| <input type="checkbox"/> Junk Events Removal  |  |                         |          |
| <input type="checkbox"/> Golden Run Selection   |  | Sho<br>Norman           |          |
|   |  |                         |          |
| <input type="checkbox"/> Signal Extraction  | <input type="checkbox"/> Bump-Hunt Fitting | Matt. G<br>Norman       |          |
|   | <input type="checkbox"/> Detached Vertex   |                         |          |
| <input type="checkbox"/> Z-Vertex Resolution  | <input type="checkbox"/> Mollers           | Holly<br>Norman         |          |
|   | <input type="checkbox"/> Tridents          | Sho<br>Norman           |          |
| <input type="checkbox"/> Beamspot Stability/Constraint  |  | Nathan                  |          |
| <input type="checkbox"/> Mass Resolution  |  | Nathan                  |          |
| <input type="checkbox"/> Firmware Trigger Efficiency<br><i>largely finished</i>                       | <input type="checkbox"/> SSP               | Kyle                    |          |
|   | <input type="checkbox"/> TI                | Kyle                    |          |

# Analysis Task List

| Topic  | Subtopic                             | Person  | Doc Link |
|--|--------------------------------------|---------|----------|
| <input type="checkbox"/> Optimized Event Selection | <input type="checkbox"/> FEE         | Holly   |          |
|  |                                      | Matt S. |          |
|  | <input type="checkbox"/> Mollers     | Brad    |          |
|  |                                      | Omar    |          |
|  | <input type="checkbox"/> Tridents    | Omar    |          |
| <input type="checkbox"/> Kinematics vs MC          | <input type="checkbox"/> Mollers     | Rafo    |          |
|  |                                      | Omar    |          |
|  | <input type="checkbox"/> Tridents    | Brad    |          |
|  |                                      | Omar    |          |
|  |                                      | Rafo    |          |
|  | <input type="checkbox"/> FEE         | Holly   |          |
|  |                                      | Matt S. |          |
|  |                                      | Omar    |          |
| <input type="checkbox"/> Tracking Efficiency       | <input type="checkbox"/> FEE         | Omar    |          |
|  |                                      | Matt S. |          |
|  | <input type="checkbox"/> Mollers     | Omar    |          |
|  | <input type="checkbox"/> MC          |         |          |
| <input type="checkbox"/> Trigger Efficiency        | <input type="checkbox"/> SSP         |         |          |
|  | <input type="checkbox"/> TI          |         |          |
| <input type="checkbox"/> Target Thickness          |                                      |         |          |
| <input type="checkbox"/> Beam Charge               | <input type="checkbox"/> Mya-Only    | Sho     |          |
|  | <input type="checkbox"/> Faraday Cup | Sebough |          |
| <input type="checkbox"/> Cluster-Track Matching    |                                      | Norman  |          |

talks at this collaboration meeting

| Topic  | Subtopic                                   | Person  | Doc Link |
|--|--|---------|----------|
| <input type="checkbox"/> Cross Sections                | <input type="checkbox"/> Moller            | Omar    |          |
|  | <input type="checkbox"/> FEE               | Matt S. |          |
|  |  | Sebough |          |
|  | <input type="checkbox"/> Tridents          | Omar    |          |
|  |  | Rafo    |          |
| <input type="checkbox"/> Improvements from ECAL Energy | <input type="checkbox"/> Mollers           | Holly   |          |
|  |  | Brad    |          |
|  |  | Norman  |          |
|  | <input type="checkbox"/> FEE               | Holly   |          |
|  | <input type="checkbox"/> Tridents          | Norman  |          |
| <input type="checkbox"/> Junk Events Removal           |  |         |          |
| <input type="checkbox"/> Golden Run Selection          |  | Sho     |          |
|  |  | Norman  |          |
| <input type="checkbox"/> Signal Extraction             | <input type="checkbox"/> Bump-Hunt Fitting | Matt. G |          |
|  |  | Norman  |          |
|  | <input type="checkbox"/> Detached Vertex   |         |          |
| <input type="checkbox"/> Z-Vertex Resolution           | <input type="checkbox"/> Mollers           | Holly   |          |
|  |  | Norman  |          |
|  | <input type="checkbox"/> Tridents          | Sho     |          |
|  |  | Norman  |          |
| <input type="checkbox"/> Beamspot Stability/Constraint |  | Nathan  |          |
| <input type="checkbox"/> Mass Resolution               |  | Nathan  |          |
| <input type="checkbox"/> Firmware Trigger Efficiency   | <input type="checkbox"/> SSP               | Kyle    |          |
|  | <input type="checkbox"/> TI                | Kyle    |          |

# Documentation

- Public and Private/Internal archives for PDFs, to be used for referencing
  - **HPS-NOTES** (public)
  - **HPS-ANALYSIS-NOTES** (private)
  - [https://misportal.jlab.org/mis/physics/hps\\_notes](https://misportal.jlab.org/mis/physics/hps_notes)
  - Submit notes at the URL above

- And corresponding github repositories for latex source: <http://github.com/JeffersonLab>

HPS Notes 2015

| Number     | Title  | Author  | Format              |
|------------|--|---|---------------------|
| 2015 - 001 | Instrucitons on how to move HPS ECal support                                       | G. Charles and E. Rindel<br>05-Jan-15                                       | <a href="#">pdf</a> |
| 2015 - 002 | Explanations on how to mount the calorimeter                                       | E. Rindel<br>05-Jan-15  | <a href="#">pdf</a> |
| 2015 - 003 | HPS ECal survey 10/2014-1  | E. Rindel<br>05-Jan-15  | <a href="#">pdf</a> |
| 2015 - 004 | Position of the crystals with respect to the targets used for the survey 10/2014-2 | E. Rindel and R. Dupré<br>06-Jan-15   | <a href="#">pdf</a> |
| 2015 - 005 | Rates on HPS SVT L1 from inclusive quasi-elastic electron scattering               | T. Maruyama and S. Stepanyan<br>24-Feb-15                                   | <a href="#">pdf</a> |
| 2015 - 006 | Angular Information of a Particle using Ecal Information                           | Holly Szumila-Vance<br>02-Apr-15  | <a href="#">pdf</a> |
| 2015 - 007 | HPS chicane current setting  | M. Ehrhart, G. Kalicy and Holly Szumila-Vance and S. Stepanyan<br>03-Aug-15 | <a href="#">pdf</a> |
| 2015 - 008 | HPS target   | Clive Field<br>08-Sep-15  | <a href="#">pdf</a> |
| 2015 - 010 | Ecal Pulse Fitting   | Nathan Baltzell<br>09-Sep-15  | <a href="#">pdf</a> |
| 2015 - 011 | Ecal Timing Calibration for the Spring 2015 Engineering Run                        | Holly Szumila-Vance<br>09-Sep-15  | <a href="#">pdf</a> |
| 2015 - 012 | Beam motion studies  | H. Egiyan, R. Paremuzyan and S. Stepanyan<br>11-Sep-15                      | <a href="#">pdf</a> |

GitHub, Inc. [US] <https://github.com/JeffersonLab?utf8=✓&query=HPS->

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**HPS-CODE** C++ ★ 0 0  
Heavy Photon Search Code  
Updated 13 days ago

**HPS-NOTES** TeX ★ 0 2  
Heavy Photon Search Public Notes  
Updated 17 days ago

**HPS-PUBS** PRIVATE  
Heavy Photon Search Publications  
Updated on Aug 12, 2014

**HPS-ANALYSIS-NOTES** PRIVATE ★ 0 0  
Heavy Photon Search Internal Notes  
Updated on Aug 11, 2014

Email me to become a member of the HPS github "Team". Used to be that any member could add members, but they changed that 😞

# Summary/Outlook

- We started an analysis “tasklist”
  - Ideally covers all tasks necessary for publishable analyses
  - With people committed to finishing and documenting each
    - a few unassigned tasks remain
  - Provides a start for organizing/managing analysis work, with followup on progress in weekly AWG meetings
- What needs added to the tasklist?
  - systematics are not mentioned (assumed to be part of each task?)
- We haven’t talked about individual task deadlines/priorities
  - Many of the listed tasks are somewhat independent
    - some rely intimately on final alignments