

New Features in PBO Lab™ 3.0.3

New Release Shipping as this AccelOrator Goes to Press

■ Particle Beam Optics Laboratory 3.0.3

The new release features several enhancements and improvements requested by users. Some of the new PBO Lab features for the most popular application modules are summarized below.

● Focusing & Bending Tool Enhancements.

The built-in PBO Lab first-order optics tools provide quick qualitative visualizations of beamlines, beam envelopes and test particle trajectories. Users have made several requests for enhancements to these tools and some of them are implemented in the new release. Included is support for the RMS (root-mean-square) Beam Piece, useful for modeling foil or gas scattering and similar beam effects. The qualitative effects of the RMS Beam Piece can now be quickly examined prior to running more quantitative particle simulations using the TURTLE, PARMILA-2, or MARYLIE Modules.

● TRACE 3-D Module Enhancements.

A novel new feature added to the TRACE 3-D Module is support for simulating the Aperture Piece in beamlines. The treatment utilizes an approximation which models apertures as a modification to the root-mean-square beam sizes. In addition to estimating size changes as a beam passes through an aperture, any associated beam current reductions are also modeled. The TRACE 3-D fitting and matching capabilities are

fully supported by the new Aperture Piece model. The Aperture Piece modeling may be turned on or off using a new TRACE 3-D Module Option (see page 2 of this newsletter for more information).

● TRANSPORT & TURTLE Module Enhancements.

Support for energy loss has been added to the RMS Beam Piece, useful for modeling straggling and similar phenomena as a beam passes through materials. New units and user guidance limits for inputting the momentum and energy change have also been implemented for the RMS Beam Piece. The new Guidance Limits indicate when the user's input will change the beam momentum at that location in the beamline by more than 10% for that RMS Beam Piece. The Guidance Limits take into consideration any acceleration or deceleration that has taken place prior to the beam reaching the RMS Beam Piece. Of course, Guidance Limits are only intended to give *guidance* - users may always input a parameter value that lies outside the parameter's Guidance Limits.

● Shipping to Users Now.

PBO Lab 3.0.3 is being automatically shipped to all users whose Technical Support and Product Update Service (TS&PUS) is current. If your TS&PUS has expired, and you wish to receive this new release, please contact us via email (accelsoft@ghga.com). Include your PBO Lab license number and we will send you information on how to easily renew your TS&PUS and obtain your copy of PBO Lab 3.0.3.

Upcoming Events and Other News

■ 23rd International Conference on the Applications of Accelerators in Research and Industry (CAARI 2014)

San Antonio, Texas: 25-30 May 2014

We invite our customers and AccelOrator readers to meet members of the AccelSoft staff and to use the opportunity to ask questions, offer suggestions, and learn more about our software.



Plan to Visit Booth No. 4

*** ACCELERATOR NEWS BULLETIN ***

The U.S. Particle Accelerator School (USPAS) will again be using PBO Lab in the following January 2014 course:

Course Title: Accelerator Physics

Instructor: Eric Prebys

This class is one of the most popular USPAS courses and has once again been "sold out" - congratulations Eric!

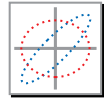
Location/Dates: Univ. of Tennessee, Knoxville, Jan. 20-31

Web: <http://uspas.fnal.gov/programs/>

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■ New Training & Education Section Added to Website

A new **Training & Education** section is being added to the AccelSoft website. The section will be accessible from the AccelSoft home page and will include links to a variety of education materials.

■ USPAS Class Materials from 2011 and 2012 Courses

Links are provided to the classroom presentations, example PBO Lab files, and other materials from 2 popular U. S. Particle Accelerator School courses:

- Fundamentals of Proton Linear Accelerators with Simulation Laboratory, given January 2011.
- Accelerator Physics, given January 2012.

■ Short Classes & Presentations at Other Institutions

Other presentations and short one-day classes have been given at several organizations. Included with the first release of the **Training & Education** section of the AccelSoft website are:

- PBO Lab Overview, a short interactive slide presentation given at various laboratories over a period of years.
- Sandia National Laboratory One-Day Class on PBO Lab and basic particle optics, given September 2008.

The downloadable material from classes that have used AccelSoft software should prove helpful in applying the software to real world problems. The section will be updated as new course materials become available.

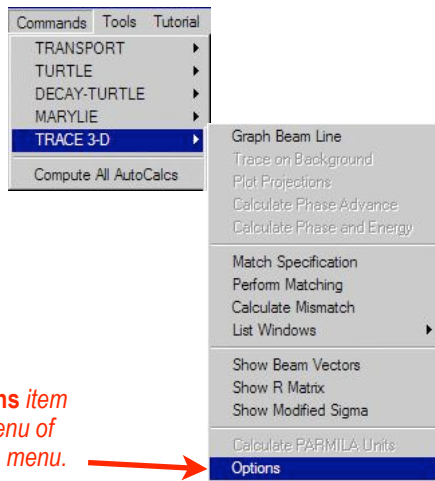


Tips, Tricks & Shortcuts

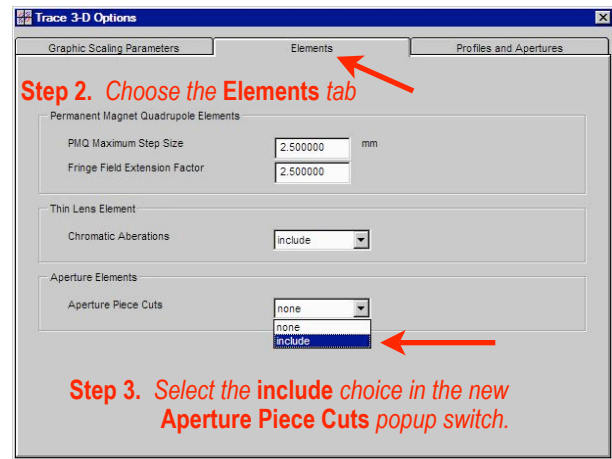
New TRACE 3-D Module Option Used to Implement Aperture Pieces



To activate the Aperture Pieces for TRACE 3-D follow 3 steps:



Step 1. Select the Options item on the TRACE 3-D submenu of the PBO Lab Commands menu.



Step 2. Choose the Elements tab

Step 3. Select the include choice in the new Aperture Piece Cuts popup switch.

That's it -- Apertures are ready for use in TRACE 3-D!

For data on current product offerings and other information, contact AccelSoft directly or through your distributor:

In Japan:



email: info@aetjapan.com

In Member States of the European Union:



PAC sprl

email: info@pac.be

www.ghga.com/accelsoft - or - www.accelsoft.us

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