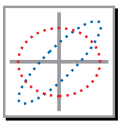
AccelOrator

AccelSoft™

Volume 13, No. 1 **The Newsletter for Particle Beam Optics Software** *May 2009*



PBO Lab™ 3.0 Now Shipping

The Next Generation in Particle Beam Optics Software

■ Particle Beam Optics Laboratory 3.0 Released

PBO Lab 3.0 is ready to ship to users this month. A major upgrade to AccelSoft's most popular software package, PBO Lab 3.0 features an expanded PBO Lab Tools Menu offering increased customization, integration and versatility. Significant enhancements have also been added to the long-standing suite of PBO Lab Modules for these optics codes: TRANSPORT, TURTLE, DECAY-TURTLE, MARYLIE and TRACE 3-D.

PBO Lab 3.0 also offers users completely new Modules. The new PARMILA-2 Module provides a powerful new package for the design and simulation of proton and heavy ion radiofrequency (RF) linear accelerators. Additional new Modules are under development or undergoing testing, including Modules for MAD, DIMAD and other popular optics programs. Please contact us if you have an interest in a particular optics program.

Recent papers describing the PARMILA-2 Module:

- "An Innovative Graphic User Interface for PARMILA 2," LINAC08 Proceedings, paper MOP099, 301-303 (2008).
- "Using PARMILA 2 with the Particle Beam Optics Laboratory," PAC09 Proceedings, paper TH5PFP056, 3 pages (2009).

The second page of this AccelOrator Newsletter provides a useful chart identifying some of the key capabilities of the most popular PBO Lab 3.0 Modules. AccelSoft can provide additional details on the capabilities of any Module. Look for additional new PBO Lab Modules to be available in the near future.

■ 2009 Particle Accelerator Conference (PAC 2009)

Vancouver, British Columbia *4 May - 8 May 2009*

We invite our readers to meet members of the AccelSoft staff and to take advantage of the opportunity to ask questions, offer suggestions, and learn more about our software. Please visit our exhibit booth.

■ OASIS™ Module Builder 1.0 Now Available

PBO Lab 3.0 also introduces OASIS, the Open Architecture Software Integration System. OASIS offers users the ability to integrate their own beam optics programs into PBO Lab. The OASIS Module Builder is used to create custom PBO Lab Modules without the need to write any new source code. The new PARMILA-2 Module was created with the OASIS Module Builder.

Recent papers on the OASIS Module Builder:

- "Open Architecture Software Integration System (OASIS) for the Particle Beam Optics Laboratory (PBO Lab)," PAC07 Proceedings, paper THPAS037, 3579-3581 (2007).
- "The Open Architecture Software Integration System (OASIS) for Creating PBO Lab Modules," LINAC08 Proceedings, paper MOP098, 298-300 (2008).

■ Automatic Transfer Map Generator (ATMG) Modules

Several new Modules are being developed that utilize electromagnetic field data to automatically calculate transfer maps. Ask us about our ATMG project.

For further information or to place an order, please contact AccelSoft Inc. directly or your International Distributor

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Application Matrix for PBO Lab 3.0 Modules

The chart below provides initial guidance in the selection of PBO Lab Modules for meeting your particular requirements. The most commonly used PBO Lab Modules are listed as column headings, while some of the primary areas of application are given along the left side. Check marks indicate areas of frequent applications for each Module. Please contact AccelSoft for additional information.

PBO Lab™ Module Principal Applications:	Basic Package	TRANSPORT	TURTLE	DECAY-TURTLE	MARYLIE	TRACE 3-D	PARMILA-2	ElectroStatic (ES) Palette	TravelingWave (TW) Palette	Optimization Module	OASIS™ Module Builder	Custom Modules
Optics Tutorial	✓											
Transfer Lines	✓	✓	✓	✓	✓	✓	✓	✓		Same as TRANSPORT, TRACE 3-D, ES Palette &/or TW Palette	Add Optics Programs to Meet Your Requirements	Ask AccelSoft About Creating Specialized Modules
Linear Machines	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Circular Machines	✓	✓			✓							
Electrons	✓	✓	✓	✓	✓	✓		✓	✓			
Protons	✓	✓	✓	✓	✓	✓	✓	✓				
Heavy Ions	✓	✓	✓	✓	✓	✓	✓	✓				
Radioactive Ions				✓								
Beam Envelopes	✓	✓			✓	✓	✓	✓	✓			
Particle Simulation			✓	✓	✓		✓					
Magnetic Optics	✓	✓	✓	✓	✓	✓	✓					
Electrostatic Optics								✓				
RF Optics		✓	✓	✓		✓	✓		✓			
Space Charge*	2D					2D,3D	3D	2D,3D	3D			
Optics Order**	1	3	3	2+	3+	1+	2+	1+	1+			
Parameter Fitting		✓			✓	✓		✓	✓	✓		
Optimization										✓		
Nonlinear Constraints										✓		

*Space Charge 2D simulates continuous beams, 3D simulates bunched beams

**Optics Order 1 refers to linear optics, higher orders include nonlinear optics and aberrations