

## AccelSoft Hits the Road

AccelSoft has attended a handful of conferences as an industrial exhibitor over the past few months in an effort to introduce our beam optics software to new communities. We enjoyed seeing some familiar faces as well as meeting new professionals in the accelerator field. Here is a brief synopsis:

The XIX International Linac Conference (LINAC98), organized by Argonne National Laboratory in association with Fermi National Accelerator Laboratory, was held in August in Chicago. LINAC98 primarily dealt with scientific and technical aspects of the design and operation of linear accelerators and associated equipment and also addressed industrial applications.

The 1998 International Computational Accelerator Physics Conference (ICAP'98), organized by Stanford Linear Accelerator Center, Los Alamos National Laboratory, and NERSC with support from the Department of Energy, took place in September in Monterey, California. The event brought together members of the international accelerator community to discuss the latest advances in computational accelerator physics and their relationship with the state-of-the-art in accelerator technology.



*The AccelSoft industrial exhibit at LINAC98 in Chicago.*

Also in September, AccelSoft attended the International Topical Meeting on Nuclear Applications of Accelerator Technology (AccApp'98) in Gatlinburg, Tennessee. This conference was the second in a series of international topical meetings sponsored by the Accelerator Applications Technical Group (AATG) of the American Nuclear Society (ANS). The purpose of the meeting was to provide a world stage for presenting and discussing the uses of particle accelerator technology for nuclear applications.

With October came the Eighth International Conference on Heavy Ion Accelerator Technology (HIAT98), held at and organized by Argonne National Laboratory. Topics of this conference included electrostatic accelerators, booster accelerators, acceleration of radioactive beams, accelerator mass spectroscopy, ECR ion sources, and other applications.

AccelSoft concluded the year by traveling to Denton, Texas for the Fifteenth International Conference on the Application of Accelerators in Research and Industry (CAARI98) in November. The purpose of the meeting was to review current research and the wealth of industrial and research applications that are in progress with accelerators throughout the world.

AccelSoft's display featured two to three demonstration stations, product literature, and relevant technical papers. "We have been very pleased with the turnout at these conferences and also with the interest our software has generated," concluded Manager of Marketing Bonnie Maratea. "We're certainly looking forward to next year, with events like PAC99 in New York."

### TECHNICAL PUBLICATIONS AVAILABLE

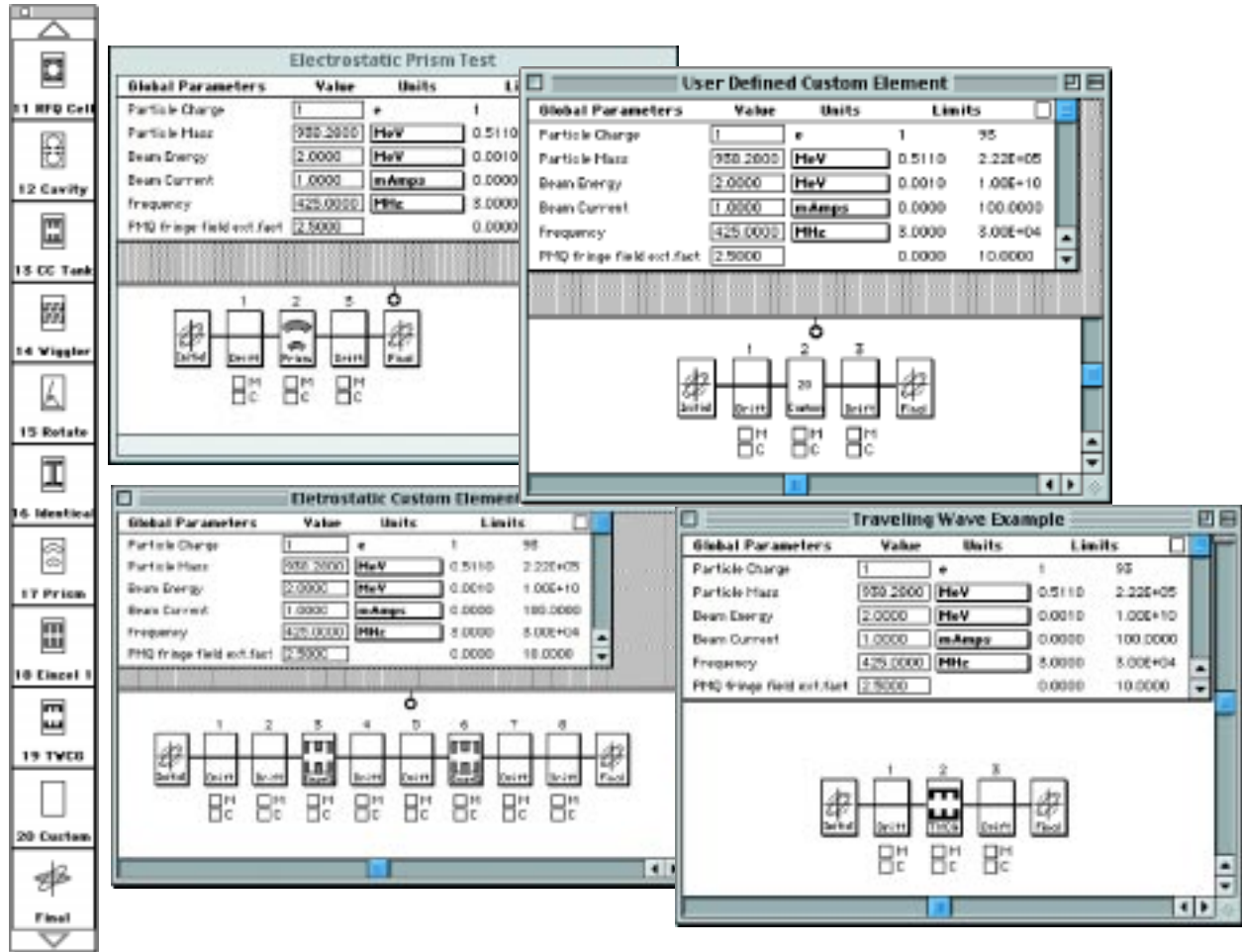
The following is a list of recent technical publications AccelSoft has on file. We will be happy to make copies of these valuable resources available to our readers upon request.

**Optics Elements for Modeling Electrostatic Lenses and Accelerator Components: IV. Electrostatic Quadrupoles and Space Charge Modeling.** Paper presented at the XIXth International Linear Accelerator Conference, 23–28 August 1998, in Chicago, Illinois. (*PowerTrace™*)

**The Particle Beam Optics Laboratory (PBO Lab™): A New Education and Training Aid.** Paper presented at Sixth European Particle Accelerator Conference, 22–26 June 1998, in Stockholm, Sweden. (*PBO Lab™*)

**Using the Particle Beam Optics Laboratory (PBO Lab™) for Beamline Design and Analysis.** Paper presented at 15th International Conference on Cyclotrons, 15–19 June 1998, in Caen, France. (*PBO Lab™*)

# Tips, Tricks & Shortcuts



## Creating custom elements in PowerTrace



The PowerTrace application supports all of the standard TRACE 3-D beamline elements and provides slots in the floating palette bar to define custom user elements. Several custom elements have also been developed which can be purchased as custom palettes for PowerTrace. These include the Electrostatic Palette and the Traveling Wave Palette modules.

With these additional modules, the default custom elements in the PowerTrace palette bar can be replaced with either the Electrostatic or Traveling Wave beamline elements. It is also possible to customize the palette bar to use a combination of elements from both the Electrostatic and Traveling Wave palettes using the TableBuilder application.

The TableBuilder is a helper application that was developed to allow users of MacTrace and PowerTrace Professional to build piece windows for their own custom elements. TableBuilder provides access to the SPARC TBLD resources for the custom user piece parameter tables. The user can define the number of parameters, their default values, upper and lower limit values, as well as the units and the parameter names for the custom user elements.

The TableBuilder can also be used to customize the palette with pre-defined custom elements such as those of the Electrostatic and Traveling Wave palette modules. By using the TableBuilder, any combination of four user-defined or pre-defined custom elements can be installed in the palette bar. For example, the four available palette slots could be used for two Electrostatic elements, one user-defined custom element and one Traveling Wave element.

# AccelSoft User Profile

## *Long-time PowerTrace user assists in software development*

**A**s a Research Physicist at Lawrence Livermore National Laboratory, Dr. Tom Brown plays an integral part in creating accelerator mass spectrometry techniques for their interdisciplinary research group. He is also involved in developing innovative records of radiocarbon concentrations in environmental reservoirs.

Dr. Brown has been a PowerTrace user since its first release in 1996. He relies on the software to model low-energy and high-energy beamlines for their accelerator mass spectrometry systems at the Center for Accelerator Mass Spectrometry. "We use the

custom electrostatic elements to model the behavior of entire systems, including einzel lenses, acceleration tubes, and acceleration gaps of mass-selecting low-energy injecting systems," explains Dr. Brown.

PowerTrace also served as a powerful tool he used in the design of a stand-alone microprobe system as well as in the development of an RFQ system. "We use PowerTrace for a number of things: it allows us to quickly make useful models of beamlines and to explore questions of beamline design," Dr. Brown continues. "The graphical interface makes it so much easier."

The relationship between G. H. Gillespie Associates and Dr. Brown began in 1994 when he purchased

a license for MacTrace, the predecessor to PowerTrace. After a couple of years, Dr. Brown recognized the need to customize some aspects of the software to facilitate his work in beamline modeling; as a result, G. H. Gillespie Associates and LLNL co-developed custom electrostatic elements to be integrated with PowerTrace.

In addition, Dr. Brown has acted as a beta tester for new products, assisting in our efforts to improve software by relying on user feedback.

Dr. Brown now mainly runs PowerTrace on an iMac with OS 8.5 on a 233 MHz processor, 32 MB of RAM and a 4 GB hard drive, but has also

run the software on a PowerBook 520c and a PowerMac 7300.

After receiving his Ph.D. in Geophysics from the University of Washington, Dr. Brown went on to LLNL, where he has been since 1994. When he is not at the lab, he has his hands full being a father to his two young daughters, a two-month-old and a three-year-old. "Spare time is not a concept I understand," he says jokingly.

As a long-time user of our software, Dr. Tom Brown has played an important role in developing new product features and enhancements for PowerTrace. We are grateful to him and other AccelSoft software users who offer their input to improve our products.

**"We use PowerTrace for a number of things: it allows us to quickly make useful models of beamlines and to explore questions of beamline design. The graphical interface makes it so much easier."**

## **PBO LAB FOR THE MAC IS HERE!**

### *New release offers more options for Macintosh users*



AccelSoft is pleased to announce that the full release of PBO Lab for the Macintosh (OS 7.6 and above) is now available. This new release is nearly identical to the Windows version, so users considering making the transition to the Mac can do so with ease.

PBO Lab for the Mac features an easy-to-use GUI that allows users to construct beamlines by dragging and dropping elements, which are defined by several sets of user parameters. This release also includes an extensive, interactive tutorial system to assist users in understanding beam optics and beamline models.

In addition, PBO Lab works with several particle optics computation engines, which are add-on modules that fully integrate with the software. Modules currently available include TRANSPORT and TURTLE. TRANSPORT, a program that uses matrix methods for modeling particle beam optic systems, offers the user the ability to model optics up to third-order. TURTLE is a multi-particle simulation program that can trace several thousand rays through beamlines designed with PBO Lab.

If you would like to learn more about this new release, please email us at [accelsoft@ghga.com](mailto:accelsoft@ghga.com).



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

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***Warm Holiday Wishes to All  
from AccelSoft Inc. and  
G. H. Gillespie Associates, Inc.***

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