Pinnacle³ Proton Planning

with Intensity-Modulated Proton Therapy (IMPT)

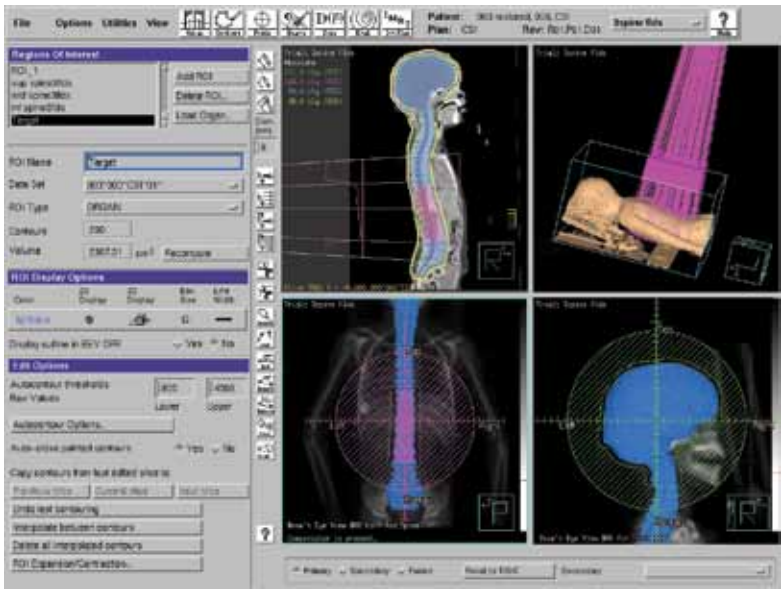
Growing efficacy evidence shows proton therapy producing better radiation dose than X-ray, increasing demand as costs decrease. Pinnacle³ Proton Planning with IMPT seamlessly integrates and simplifies proton-photon planning and addresses some key industry challenges.

Key advantages

- **Seamlessly integrated** proton-photon planning within the trusted Pinnacle³ environment
- **Accelerated** clinical adoption with simplified modeling and commissioning
- **Enhanced** daily planning with Dynamic Planning
- **Confident** planning with robust optimization

Seamless

planning and treatment selection



Enhanced sparing of critical structures with Pinnacle[3] proton planning.

Proton Planning is fully integrated within the Pinnacle3 environment. This allows seamless planning from a wide range of clinical applications for multiple delivery devices.

"The interface still has a familiar feel as the photon-only program. Easy to adjust to."

Randy Henderson, MD
University of Florida Proton Therapy Institute
Gainsville, FL

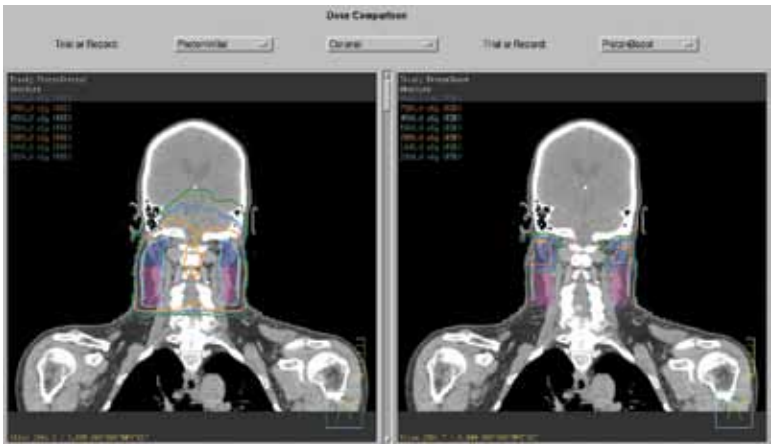
Optimized treatment selection

The dose computation is designed to facilitate composite planning with protons, photons, electrons, and brachytherapy.

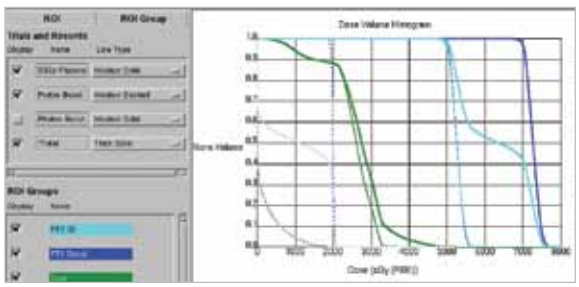
Intuitive visualization tools enable side-by-side comparisons of different plans to determine the preferred treatment protocol.

"This capability has allowed us to confidently choose the best treatment modality for each patient."

Eric E. Klein, PhD
Professor of Radiation Oncology
Washington University
St. Louis MO



Proton-photon plan comparison.



Dose Volume histograms showing the composite effect of a photon plan with a proton boost.

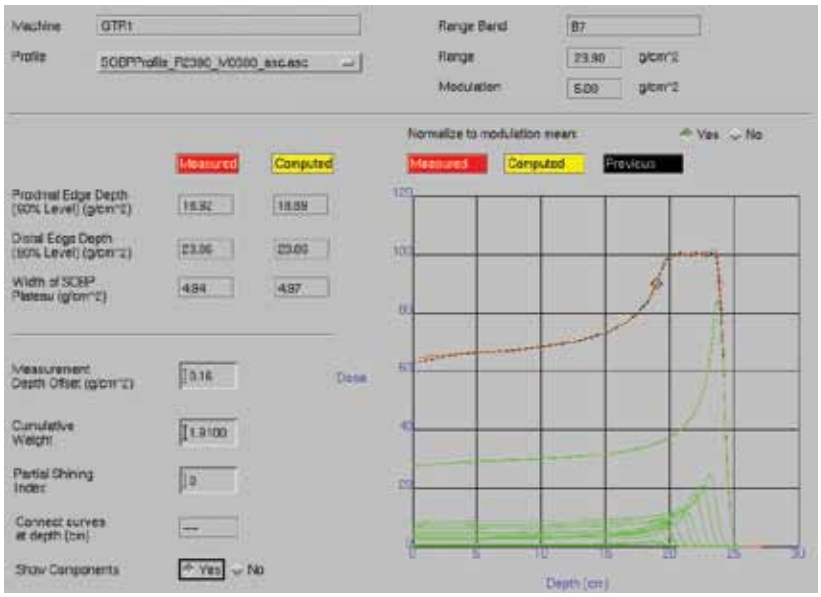
Proton-photon planning

Comprehensive evaluation tools are provided to monitor the dose to the target and critical structures from different plans including photons, protons, and a composite plan.

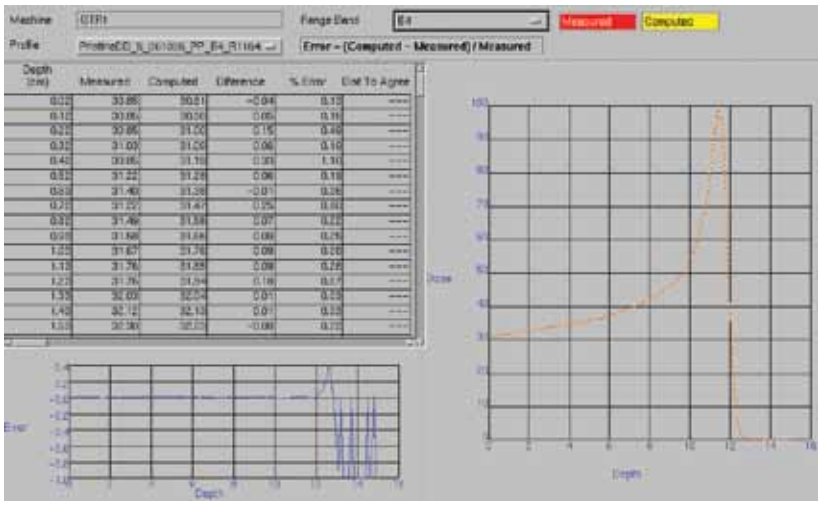
Simplified

commissioning and daily planning

Features such as the generalized SOBP-based modeling reduce the demand for incorporating detailed information of the delivery system and simplify the commissioning process.



Generalized SOBP-based modeling within the physics module.



Comparing computed and measured dose profiles within the physics module.

Efficient workflow

The implementation of Pinnacle[3] can provide efficiency gains over conventional planning techniques.

- The simplified commissioning process reduces time and effort for clinical implementation.
- Automated contouring with Auto-Segmentation with SPICE streamlines the contouring process to just a few fast clicks, providing consistent contours in minutes that require little or no editing.
- The ability to automate repetitive processes through scripting provides consistency of plan and streamlined workflow.
- Fast assessment and automated re-planning tools provided by Dynamic Planning generate at-a-glance information to help monitor treatment efficacy and create new plans with limited user intervention to adjust for patient changes during treatment.

Trusted dose computation

The Parameter Linearization process simplifies beam modeling, and the customized pencil-beam dose calculation engine uses a modified Bortfeld Bragg Peak fitting function to enhance accuracy.

"This is much easier and more user-friendly than other systems I commissioned. A great tool for physics."

Niek Schreuder, Vice President and Chief Medical Physicist
ProVision Health Partners, Knoxville TN

Pinnacle³ 16 Proton Planning with IMPT

Integrated

proton-photon planning in a **trusted** environment

Improved dose distribution compared to X-ray

Precise dose distribution is crucial to patient health, thereby driving increased demand for proton therapy. A growing number of centers around the world have already adopted this cutting-edge technology, with the number expected to nearly double in the next 3-5 years as growing evidence of efficacy and decreasing costs make proton planning even more attractive.

Pinnacle³ 16 Proton Planning with IMPT integrates with conventional treatment planning to **offer distinct advantages over competitive systems by** reducing labor-intensive, time consuming commissioning and cumbersome daily planning.

Controlled

beam delivery with many degrees of freedom

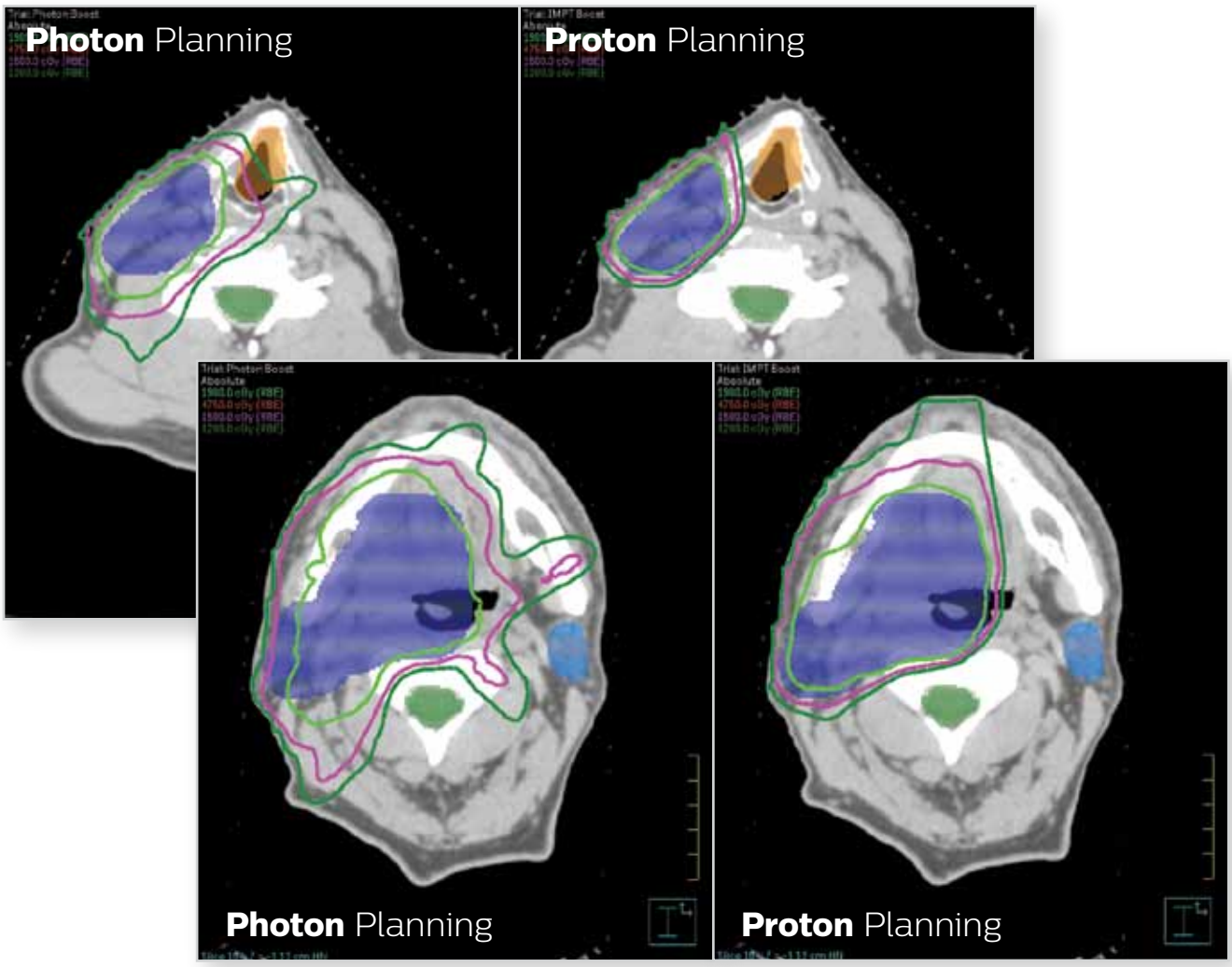
The **advantages** of pencil beam scanning (PBS)

Pinnacle³ 16 Proton Planning with IMPT delivers dose via Pencil Beam Scanning (PBS). Pencil beam spots can be magnetically scanned in either direction lateral to the beam path, creating a large field without introducing scattering elements.

Pinnacle³ PBS beam delivery provides a large number of degrees of freedom, allowing control of the position, energy and number of protons for each and every single pencil beam, with sizes as small as 3 mm.

PBS “inverse” treatment planning therefore enables the capability to optimize the weight of thousands of individual proton beams. The number of protons associated with each pencil beam is adjusted in order to achieve the best compromise between target coverage and the sparing of organs at risk.

Specially designed tools and seamless Pinnacle³ integration provide easily-selectable treatment options and improve workflow.



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