



visions. innovations. solutions.

VeriSuite®

MedCom's innovative patient positioning and verification system for particle therapy systems



MedCom in a Nutshell

MedCom was founded in 1997 as a spin-off of the Fraunhofer Institute for Computer Graphics (IGD), the world leader R&D institution for computer graphics technologies.

We provide innovative solutions in the field of cancer treatment planning and performance as OEM manufacturer for key players in the medical market and besides VeriSuite® we offer a number of products for radiotherapy, for example ProSoma® and NaviSuite®.



Gesellschaft für medizinische
Bildverarbeitung mbH
Rundeturmstraße 12
D - 64283 Darmstadt

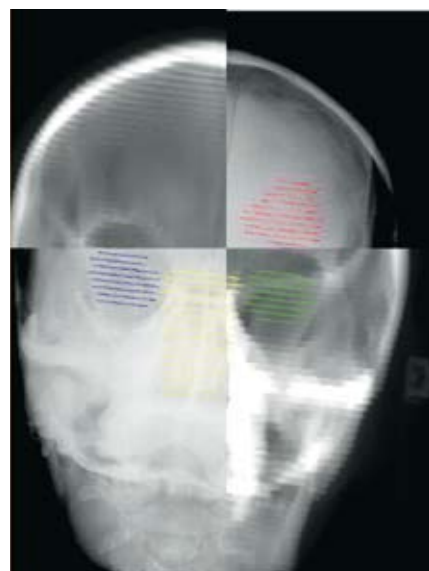
Phone: +49 (0) 6151 - 951 47 0
Fax: +49 (0) 6151 - 951 47 20

E-Mail: info@medcom-online.de
Internet: www.medcom-online.de

Certificates:
Quality Management System according to the provisions of Medical Device Directive MDD 93/42 Annex EEC II for manufacturers of medical devices in the European economic area. This QM System fulfills the international standard DIN EN ISO 13485:2003

VeriSuite® patient position verification system

To benefit from the preciseness of a particle beam treatment, highly accurate positioning of the patient during the treatment is a crucial issue. Leading vendors for particle therapy systems like I.B.A. and Varian as well as other treatment sites have selected MedCom's VeriSuite® software-tool for highly precise position verification.



The VeriSuite® system provides a 6 degrees of freedom correction vector up to a sub-millimeter accuracy by the registration of two DRR images rendered from a high quality CT image series of the patient and two stereographic X-ray images that are acquired during the treatment.

For the calculation of this correction vector several approaches are integrated: an automatic and fast solution, a manual definition of the correction by a therapist and for soft tissue tumors a correction based on implanted fiducial markers.

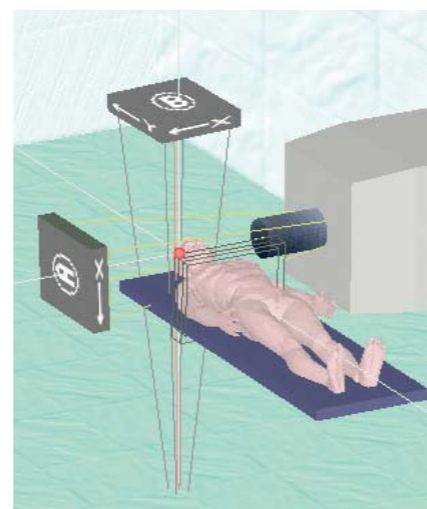
Supporting the latest developments for particle therapy in the DICOM standard the VeriSuite® system is designed for a fast workflow in the treatment room to keep the setup time of the patient as low as necessary. It is connected directly to a modern Oncology Information System (e.g. Mosaiq or Aria) for transfer of the required patient data and can directly transfer the correction vector to a treatment control system that directly applies this to a patient support device such as a patient couch, robotic patient support device or a treatment chair.

Direct control of the X-ray parameters (mAs, kVp) for image acquisition and numerous software tools, ranging from contrast and intensity enhancement to automatic brightness adjustment, zooming and panning of images, ease the visualization of X-ray and DRR images and support the therapist to efficiently perform the tasks in the treatment room.



The automatic, mutual information based calculation of the correction vector allows reliable and accurate identification of patient misalignments. Unwanted image regions, e.g. fixation equipment, can be excluded from the

image registration process by definition of a ROI with a few mouse-clicks. Manual intervention in the process is still possible, using different methods for manual or semi-automatic position correction. The quality of a correction can be easily validated by the therapist prior to approval, as VeriSuite® immediately visualizes the resulting DRR images for an improved patient position in a Fusion View.



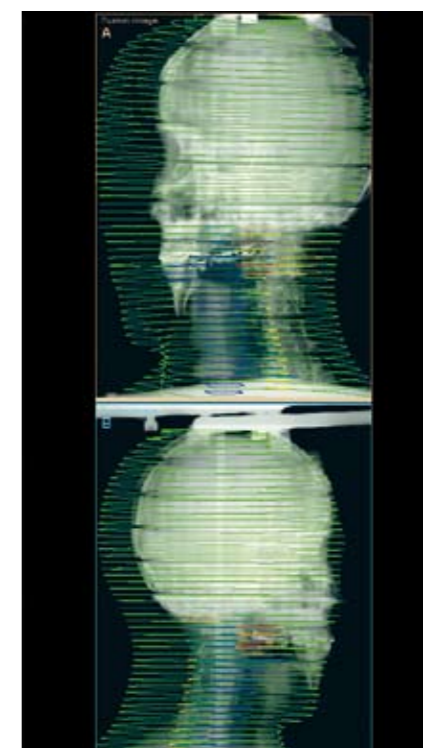
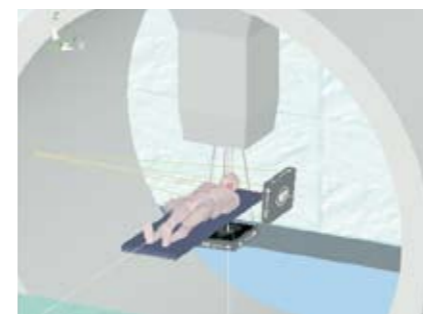
The X-ray hardware of the system contains a remote controllable high performance X-ray generator (40-150 kV peak, 80 kW) and high resolution image receptors. Despite of the two standard configurations given below

the hardware can be arranged arbitrary configurations tailored to the needs of the respective treatment room.

VeriSuite® supports virtually any treatment room layout with up to three different radiographic X-ray axes at once. The system provides procedures for geometric calibration of the X-ray equipment. Thus minor misalignments of the imaging devices as well as isocenter displacements can be automatically corrected by the software. This ensures reliable results and an increased patient set-up precision.

The verification results such as correction vector and all involved images can be stored in DICOM format via network connection in an OIS for documentation purposes. A dedicated VeriSuite® Viewer can visualize this data and allow reviewing the results of corrections from former treatment sessions.

For the benefit of your patients the right X-ray technology, intelligent algorithms in combination with high precision patient positioning devices provide you the best solution available today. This solution is time efficient, highly precise and low in X-ray dose to the patient.



Verisuite® has already been installed in various treatment facilities worldwide:

University of Pennsylvania, Philadelphia, USA:
4 GTR and 1 FBTR

ProCure Center, Oklahoma City, USA:
1 GTR, 1 FBTR, 2 IBTR

WPE, Essen, Germany:
3 GTR, 1 FBTR, 2 SR

CPO, Orsay, France:
1 GTR

CNAO Foundation, Pavia, Italy:
3 FBTR

RPTC, Munich, Germany:
4 GTR and 1 FBTR

ProCure Training and Development Center, Bloomington, Indiana, USA:
1 GTR and 1 IBTR for training purposes