**APPLICATION:** Method and System for Image Pumping

**SUMMARY:**

iPump® stands for “Image Pump”. It is a computer program that runs remotely to “pump” BrainLab ExacTrac images into any Record and Verify (R&V) system via a standard DICOM connection in the radiation therapy clinic. This program makes possible the remote image review if images in real time.

Image Guided Radiation Therapy (IGRT) is the next-generation of technology for high precision radiotherapy. This state-of-the-art technology combines planning and in-room imaging of the patient’s target diseased tissue in the treatment position, before treatment delivery. The images can be examined on-line or off-line, for optimization of the accuracy and precision of the radiotherapy.

Some of the current IGRT systems lack the functionality to communicate with R&V system. This can impact radiation oncologists who need to approve the image registration at the console to approve a procedure. iPump® provides the interfacing program that grabs JPEG images on ExacTrac IGRT system, fuses them and sends them to the R&V system automatically in DICOM format. The built-in instant messaging mechanism automatically notifies the attending radiation oncologist immediately after images were sent to the R&V system to allow on-line remote image review with the approval record. iPump® utilizes state-of-the-art technologies to bridge two currently incompatible systems.

iPump®, significantly improves the safety and efficiency of the radiation management processes as well as consolidation of the entire patient’s medical record within the same location in the R&V systems. Any further data mining and analyses for research purposes are streamlined via data consolidation making these software utilities valuable both in clinics and in the research setting.

All original patient data on ExacTrac computer is intact. It can run on any computer with Microsoft Windows NT/2000/XP platform with READ access to patient data directory on ExacTrac computer. For the latest updates on iPump, the reader is referred to the dedicated website http://www.radonc.uams.edu/iPump.asp.