

## Séminaire LAL

***Alberto Degiovanni***  
***(ADAM SA, Switzerland)***

**Vendredi 1er février 2019 à 11h00**

### ***Applications of high frequency linac for proton therapy***

Beams of up to 230 MeV protons are delivered in more than 66 centers around the world for the treatment of deep seated solid tumors.

At present more than 150'000 patients have been treated with proton beams. Low proton currents - of the order of 1 nA - are enough to deliver a dose of 2 Gy over one liter volume in about one minute. For this reason, the use of high frequency linacs, working at the same 3 GHz frequency as the conventional radio-therapy linacs, are well suited in spite of the small apertures and low duty cycle. The main advantage of linacs, pulsing at 200 Hz, is the possibility of continuously varying the output beam energy (active energy modulation). The company A.D.A.M. (Application of Detectors and Accelerators to Medicine), a CERN spin-off, is working on the construction and testing of its first linear accelerator for medical application: LIGHT (Linac for Image-Guided Hadron Therapy). LIGHT is an innovative high frequency proton linac designed to accelerate proton beams up to 230 MeV for proton therapy applications. The LIGHT accelerator consists of three different linac sections. The compact and modular design is based on the experience of CERN and TERA Foundation and on technologies developed for particle colliders and adapted to the needs of hadron therapy beams. A prototype of LIGHT is presently under test at CERN.

***Salle 101*** - Bât. 200, Orsay

**Organisation :**

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