

## 2013 年度

### 1. 学術論文、国際会議プロシーディング、解説論文等

(学術論文)

- 1) Matsuura T, Miyamoto N, Shimizu S, Fujii Y, Umezawa M, Takao S, Nihongi H, Toramatsu C, Sutherland K, Suzuki R, Ishikawa M, Kinoshita R, Maeda K, Umegaki K, Shirato H. **Integration of a real-time tumor monitoring system into gated proton spot-scanning beam therapy: An initial phantom study using patient tumor trajectory data.** Med Phys. 2013 Jul;40(7):071729.
- 2) S. Shimizu, N. Miyamoto, T. Matsuura, Y. Fujii, M. Umezawa, K. Umegaki, K. Hiramoto, and H. Shirato: **A Proton Beam Therapy System Dedicated to Spot-scanning Increases Accuracy with Moving tumors by Real-time Imaging and Gating and Reduces Equipment Size.** Plos One, 2014.

(国際会議プロシーディング)

- 1) T. Matsuura, K. Umegaki, et al, **Effectiveness of an in-gate beam tracking method in spot-scanning proton therapy.**  
< AAPM 55th annual meeting, Indiana Convention Center, Indiana, USA, August 4-8, 2013. >
- 2) Masumi Umezawa, Rintaro Fujimoto, Tooru Umekawa, Yusuke Fujii, Taisuke Takayanagi, Futaro Ebina, Takamichi Aoki, Yoshihiko Nagamine, Koji Matsuda, Kazuo Hiramoto, Taeko Matsuura, Naoki Miyamoto, Chie Toramatsu, Seishin Takao, Hideaki Nihongi, Takahiro Yamada, Kikuo Umegaki, Hiroki Shirato, **Progress report on collaborative research and development activities in Gated Spot Scanning Proton Therapy System with Real-Time Tumor Tracking.** < the FIRST Joint International Symposium Overcoming Intractable Cancer-a new path to the future, Sapporo, February 21-24, 2014 >
- 3) Yusuke Fujii, Toru Umekawa, Masumi Umezawa, Kazuo Hiramoto, Naoki Miyamoto, Taeko Matsuura, Chie Toramatsu, Seishin Takao, Hideaki Nihongi, Kikuo Umegaki and Hiroki Shirato, **Development of the Proton Spot Scanning Operation with Real-Time Tumor-Tracking Technology.** < the FIRST Joint International Symposium Overcoming Intractable Cancer-a new path to the future, Sapporo, February 21-24, 2014 >

(解説論文等)

白土博樹、梅垣菊男『北海道大学分子追跡陽子線治療施設』インナービジョン 2013年7月号(50-51)

### 2. 招待講演

- 1) "A Next-Generation Novel Proton Beam Therapy System for Cancer Treatment" Hokkaido University – Aalto University Inter-University Exchange Seminar, Aalto University, Helsinki, Finland, March 10, 2014  
「第1回北海道大学病院 – ソウル大学病院ジョイントシンポジウム」2013.12.13 ソウル大学病院
- 2) "A Next-Generation Novel Proton Beam Therapy System for Cancer Treatment" Hokkaido University – Aalto University Inter-University Exchange Seminar, Aalto University, Helsinki, Finland, March 10, 2014

### 3. 国内学会発表

1) T. Matsuura, N. Miyamoto, S. Shimizu Y. Fujii, M. Umezawa, S. Takao, H. Nihongi, C. Toramatsu, K. Umegaki, and H. Shirato: **A study on a gated proton spot-scanning beam therapy integrated with a real-time tumor-monitoring: an initial phantom study using patient tumor trajectory data.** 第105回日本医学物理学会学術大会、パシフィコ横浜会議センター、2013.4.11-14

### 4. 知的財産権

(国内出願中特許)

- ・「放射線治療システム」特願 2013-162656 (2013.8.5)
- ・「荷電粒子ビームシステム」特願 2013-224765 (2013.10.29)
- ・「粒子線治療システムおよびリッジフィルタならびにリッジフィルタの製造方法」特願 2013-260896 (2013.12.18)

(PCT国際出願特許)

- ・「動体追跡装置および放射線治療システム」PCT/JP2013/070477 (2013.7.29)
- ・「粒子線照射システムおよび治療計画装置」PCT/JP2013/070475 (2013.7.29)
- ・「粒子線治療装置」PCT/JP2013/077642 (2013.10.10)
- ・「粒子線治療システム」PCT/JP2013/077640 (2013.10.10)
- ・「粒子線治療システムおよび飛程調整装置」PCT/JP2013/077647 (2013.10.10)