

## 2014 年度

### 1. 学術論文、国際会議プロシーディング、著書

(学術論文)

1. **A Proton Beam Therapy System Dedicated to Spot-Scanning Increases Accuracy with Moving Tumors by Real-Time Imaging and Gating and Reduces Equipment Size.**, Shimizu S, Miyamoto N, Matsuura T, Fujii Y, Umezawa M, K Umegaki, et al., *PLoS ONE*, (査読有) , 9(4):e94971, 2014
2. **Preliminary analysis for integration of spot-scanning proton beam therapy and real-time imaging and gating**, Shimizu S, Matsuura T, Umezawa M, Hiramoto K, Miyamoto N, Umegaki K, Shirato H, *Phys Med.* (査読有) , 30(5) 555-558, 2014

(国際会議プロシーディング)

3. K. Umegaki, C. Toramatsu, T. Matsuura, S. Takao, H. Nihongi, T. Yamada, N. Miyamoto, S. Shimizu, K. Matsuda, F. Nakamura, M. Umezawa, K. Hiramoto, H. Shirato, **Development and Commissioning of a Gated Spot Scanning Proton Beam Therapy System with Real-time Tumor-tracking**, American Association of Physicists in Medicine (AAPM) 56<sup>th</sup> Annual Meeting, Jul. 20-24, 2014, Austin, United States
4. S Shimizu, S Takao, T Matsuura, N Miyamoto, R Baba, T Umekawa, K Matsuda, T Sasaki, Y Nagamine, K Umegaki, H Shirato, **Realization of the Cone-Beam CT by FPDs that mounted on the spot-scanning dedicated proton beam gantry**, American Society for Radiation Oncology (ASTRO) 56<sup>th</sup> Annual Meeting, Sep 14-17, San Francisco(CA), United States
5. T Matsuura, S Shimizu, N Miyamoto, S Takao, C Toramatsu, H Nihongi, T Yamada, Y Fujii, M Umezawa, K Umegaki, H Shirato, **Improvement of Accuracy of Spot-Scanning Proton Beam Delivery for Liver Tumor by Real-Time Tumor-Monitoring and Gating System: A simulation Study**, American Association of Physicists in Medicine (AAPM) 56<sup>th</sup> Annual Meeting, Jul. 20-24, 2014, Austin, United States
6. S Takao, S Shimizu, N Miyamoto, T Matsuura, C Toramatsu, H Nihongi, T Yamada, K Matsuda, T Sasaki, Y Nagamine, R Baba, T Umekawa, K Umegaki, H Shirato, **Commissioning of the On-Board Cone-Beam CT System Equipped On the Rotating Gantry of Proton Therapy System**, American Association of Physicists in Medicine (AAPM) 56<sup>th</sup> Annual Meeting, Jul. 20-24, 2014, Austin, United States
7. T. Yamada, T. Matsuura, S. Takao, N. Miyamoto, C. Toramatsu, S. Shimizu, S. Hirayama, H. Nihongi, M. Hosaka, Y. Nagamine, K. Umegaki and H. Shirato, **Validation of treatment planning system of a spot-scanning proton therapy at Hokkaido University**, The 7th Korea-Japan Joint Meeting on Medical Physics in conjunction with the 48th Meeting of KSMP and the 108th Meeting of JSMP, 2014/9/25-27, Busan, Korea
8. H. Ueda, T. Matsuura, Y. Fujii, Y. Matsuzaki, T. Takayanagi, H. Sato, M. Furusaka, K. Umegaki, and H. Shirato, **Precise reproduction of pencil beam profiles for proton beam spot-scanning method by Monte Carlo simulation using proton beam-parameters**, The 7th Korea-Japan Joint Meeting on Medical Physics in conjunction with the 48th Meeting of KSMP and the 108th Meeting of JSMP, 2014/9/25-27, Busan, Korea

9. T. Matsuura, Y. Fujii, S. Takao, Y. Matsuzaki, T. Yamada, N. Miyamoto, Y. Matsuo, S. Fujitaka, T. Takayanagi, K. Umegaki, H. Shirato, **Development of a short range applicator for real-time-image gated proton beam therapy**, The 109th Meeting of JSMP, 2015/04/16-19, Yokohama
10. S. Takao, S. Shimizu, N. Miyamoto, T. Matsuura, Y. Matsuzaki, T. Yamada, Y. Fujii, Y. Matsuo, K. Umegaki, H. Shirato, **Commissioning of the on-board cone-beam CT system equipped on the rotating gantry of a proton beam therapy system**, The 109th Meeting of JSMP, 2015/04/16-19, Yokohama
11. Yuka Matsuzaki, T. Matsuura, S. Takao, T. Yamada, Y. Fujii, K. Horita, S. Tsuji, Y. Matsuo, S. Shimizu, K. Umegaki, H. Shirato, **The Establishment of quality assurance procedures for spot-scanning proton beam irradiation system at Hokkaido University**, The 109th Meeting of JSMP, 2015/04/16-19, Yokohama
12. N. Miyamoto, S. Takao, T. Matsuura, Y. Matsuzaki, T. Yamada, Y. Fujii, Y. Matsuo, S. Shimizu, K. Umegaki, H. Shirato, **Commissioning of real-time tumor-tracking system installed in Hokkaido University Hospital Proton Center**, The 109th Meeting of JSMP, 2015/04/16-19, Yokohama

(寄稿)

1. 「分子追跡陽子線治療システムの開発」電気評論誌 6月号特集

#### 招待講演

1. “Development of gated spot scanning proton beam therapy system with real-time tumor tracking”  
The 7th Korea-Japan Joint Meeting on Medical Physics in conjunction with the 48th Meeting of KSMP and the 108th Meeting of JSMP, 2014/9/25-27, Busan, Korea
2. 「最先端陽子線がん治療装置の開発-北海道大学における陽子線治療の開始と今後の展開-」(平成 26 年度放射線安全取扱部会年次大会、札幌市 かでる 2・7、2014.10.31)

#### 知的財産権

##### (国内出願特許)

「粒子線照射システムおよび治療計画装置」特開 2014-057738 (2014.4.3)

「粒子線治療装置」特開 2014-124206 (2014.07.07)

「粒子線治療システム」特開 2014-144122 (2014.08.14)

「粒子線治療システムおよび飛程調整装置」特開 2014-161706 (2014.09.08)

「放射線治療システム」特開 2015-029793 (2015.02.16)

##### (PCT 国際出願特許)

「粒子線治療システムおよび飛程調整装置」PCT/JP2013/077647 (2014.08.07)

「粒子線治療システム」PCT/JP2013/077640 (2014.09.04)