Joint Symposium 2013 on Carbon Ion Radiotherapy
Fostering International Collaboration between Japan and the United States in Carbon Ion Radiotherapy

A two day symposium sponsored by:

**Mayo Clinic Department of Radiation Oncology**
**Japan National Institute of Radiological Sciences**
**Northern Illinois University Institute for Neutron Therapy at Fermilab**

Double Tree Hotel, Rochester, MN – May 2-3, 2013

**Thursday, May 2, 2013: Clinical Practice, Development Opportunities, and Radiobiology**

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<tr>
<th>Time</th>
<th>Speakers and Topics</th>
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| 8:30 a.m.     | **Welcome and Introductions**  
1. Mayo Welcome – Robert C. Miller, M.D.  
2. NIRS Welcome – Tadashi Kamada, M.D., Ph.D.  
3. NIU/Fermi Lab Welcome – James S. Welsh, M.D. |
| 8:45 a.m.     | **Presentation of Symposium Goals** – Michael G. Herman, Ph.D. (Mayo)                |
| 9:00 a.m.     | **Session 1: Clinical Presentations – NIRS Experience**  
Chair - Tadashi Kamada, M.D., Ph.D. (NIRS) |
| 9:00 a.m.     | History of Ion Beam Therapy  
Hirohiko Tsujii, M.D., Ph.D. (NIRS) |
| 9:30 a.m.     | Overview of the Carbon Ion Therapy at HIMAC (Including Head and Neck Tumors, and Bone and Soft Tissue Sarcomas)  
Tadashi Kamada, M.D., Ph.D. (NIRS) |
| 10:00 a.m.    | **Break**                                                                         |
| 10:30 a.m.    | Carbon Ion Radiotherapy in a Hypo-fractionation Regimen for Stage I Non-small Cell Lung Cancer  
Naoyoshi Yamamoto, M.D., Ph.D. (NIRS) |
| 11:00 a.m.    | Carbon Ion Radiotherapy for Liver Cancer and Prostate Cancer  
Hiroshi Tsuji, M.D., Ph.D. (NIRS) |
| 11:30 a.m.    | Carbon Ion Radiotherapy for Patients with Locally Recurrent Rectal Cancer and Pancreas Cancer  
Shigeru Yamada, M.D., Ph.D. (NIRS) |
| 12:00 a.m.    | **Lunch**                                                                         |
| 1:00 p.m.     | **Session 2: U.S. and European Perspectives on Carbon Ion Radiotherapy & Radiobiology**  
Chair - Robert C. Miller, M.D. (Mayo) |
|               | Mayo Clinic Vision for Hadron Therapy  
Robert C. Miller, M.D. (Mayo) |
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| 1:25 p.m.| GSI/HIT Experience with Carbon Ions<br>
*Stephanie E. Combs, M.D. (HIT)* |
| 1:50 p.m.| ENLIGHT Vision for Hadron Therapy<br>
*Manjit Dosanjh, Ph.D. (CERN/ENLIGHT)* |
| 2:15 p.m.| Fermi/NIU Vision for Hadron Therapy<br>
*James S. Welsh, M.D. (NIU/Fermi)* |
| 2:40 p.m.| Radiobiology of Hypofractionated Radiotherapy<br>
*David J. Brenner, Ph.D. (Columbia)* |
| 3:05 p.m.| **Break**                                                                |
| 3:30 p.m.| Challenges and Opportunities in Particle Radiation Therapy Research<br>
*Bhadrasain Vikram, M.D. (NIH)* |
| 4:00 p.m.| Current Status & Future Vision: Particle Radiobiology<br>
*Eleanor A. Blakely, Ph.D. (Berkeley)* |
| 4:30 p.m.| **Conclusion of Day #1 Discussion**                                       |

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**Friday, May 3, 2013: Technology and Physics Presentations**

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<tr>
<th>Time</th>
<th>Session</th>
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| 8:30 a.m.| Overview of NIRS Accelerator Activity<br>
*Koji Noda, Ph.D. (NIRS)* |
| 9:00 a.m.| New Particle Therapy Facility in NIRS, Present and Future Plan<br>
*Toshiyuki Shirai, Ph.D. (NIRS)* |
| 9:30 a.m.| Modeling the Clinical and Biological Effect of Therapeutic Carbon Ion Beam<br>
*Naruhiro Matsufuji, Ph.D. (NIRS)* |
| 10:00 a.m.| NIRS Scanning System: Present Status and Future Prospects<br>
*Takuji Furukawa, Ph.D. (NIRS)* |
| 10:30 a.m.| **Break**                                                                |
| 11:00 a.m.| TPS for NIRS Scanning: Present Status and Future Prospects<br>
*Taku Inaniwa, Ph.D. (NIRS)* |
| 11:30 a.m.| Multi-dimensional Image Guided Particle Therapy<br>
*Shinichiro Mori, Ph.D. (NIRS)* |
| 12:00 a.m.| **Lunch**                                                                |
| 1:00 p.m.| DOE Perspective on Technology for Ion Therapy<br>
*Michael Zisman, Ph.D. (DOE)* |
| 1:15 p.m.| Ion Workshop Summary Clinical/Radiobiology<br>
*John O’Connell, M.D. (Walter Reed)* |
| 1:45 p.m.| Ion Workshop Summary Accelerator and Delivery<br>
*Chris Beltran, Ph.D. (Mayo)* |
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<tr>
<td>2:15 p.m.</td>
<td>Break</td>
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<tr>
<td>2:30 p.m.</td>
<td><strong>Carbon/Proton CT Image-guidance</strong>&lt;br&gt;George Coutrakon, Ph.D. (NIU)</td>
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<td>3:00 p.m.</td>
<td><strong>Advanced Accelerator Technologies for Ion Therapy</strong>&lt;br&gt;Carol Johnstone, Ph.D. (Particle Accelerator Corporation)</td>
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<td>3:30 p.m.</td>
<td><strong>Carbon Ion Therapy for Cardiac Disease</strong>&lt;br&gt;Douglas L. Packer, M.D. (Mayo)</td>
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<td>4:00 p.m.</td>
<td><strong>Discussion of Symposium Goals</strong></td>
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<td>5:00 p.m.</td>
<td><strong>Tour of Mayo Clinic and Proton Beam Therapy Center site</strong></td>
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