Muons, Inc.

Agenda for Planning Week

Monday Sept. 24  Introduction, WH7X
• 1:00  Rol  Welcome, Overview, Muons, Inc. update
• 1:30  Richard  New projects outside of DOE
• 2:00  Rol  Phase I DOE Possibilities
• 2:15  All  Discussion of potential DOE proposals, first prioritization
4:00  All  Start of DOE proposal discussions
6:00  All  Adjourn to user's center for more

Tuesday Sept. 25  WH2NW am, WH7X pm
  8:30  Discussion as determined by Monday's priority discussion
  7:30 pm  Dinner at El Taco Grande West

Wednesday Sept 26  Phase II proposals (due April ?) WH13X am WH7X pm
• 10:00  Steve, Sasha  HCC Magnets
• 10:45  Milorad, Rol  Compact RF
• 11:30  Chuck, Rol  Stopping Muon Beams
•  Start of PIC/REMEX workshop WH7X pm
• 13:00  David  PIC simulation status

Thursday Sept 27 WH13X am, WH7X pm More workshop, seminar at IIT
• 9:30  Bob Palmer  PIC considerations and space charge
• 10:30  Slava Derbenev  Aberration corrections for PIC lattices

Friday Sept 28  WH2NW am, WH7X pm Unfinished business, assignments
• 12:30  Muons, Inc. organizational meeting
• 13:30  NUMU Meeting: Muons, Inc. planning meeting summary

Rol  9/24/2007  2007 Planning Meeting
Tuesday 9/25/2007 Discussions

8:30 MC Achromatic Low beta Design         Alex
9:00 Dogbone RLA                            Alex
9:30 Grand Muon Collider Synthesis         Rol
10:30 Metallic hydrogen storage for HPRF    Sergey
11:00 RF Breakdown Mitigation              Sergey
11:30 Plasma Lens                          Steve
13:00 HTS Solenoid and Quench Protection   Steve
13:30 Metallic Deposition                  Genfa
14:00 SRF High-Power Couplers              David
14:30 G4BL Applications (HEP, medical,?)   Tom
15:00 RF Breakdown Studies                 Richard
16:00 Novel muon collection schemes        Chuck
# Muons, Inc. Project History

<table>
<thead>
<tr>
<th>Year</th>
<th>Project</th>
<th>Expected Funds</th>
<th>Research Partner</th>
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<tbody>
<tr>
<td>2002</td>
<td>Company founded</td>
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<tr>
<td>2002-5</td>
<td>High Pressure RF Cavity</td>
<td>$600,000</td>
<td>IIT</td>
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<td>2003-7</td>
<td>Helical Cooling Channel</td>
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<td>JLab</td>
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<td>2004-5†</td>
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<tr>
<td>2004-7</td>
<td>Phase Ionization Cooling</td>
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<td>2004-7</td>
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<tr>
<td>2005-8</td>
<td>Reverse Emittance Exch.</td>
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<td>JLab</td>
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<tr>
<td>2005-8</td>
<td>Capture, ph. rotation</td>
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<tr>
<td>2006-9</td>
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<td>IIT</td>
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<tr>
<td>2006-9</td>
<td>MANX 6D Cooling Demo</td>
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<td>2007-8</td>
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<td>FNAL APC</td>
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<tr>
<td>2007-8</td>
<td>HCC Magnets</td>
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<td>2007-8</td>
<td>Compact, Tunable RF</td>
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<td>FNAL AD</td>
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$6,785,000 ($3,285,000 COOL05)

† Not continued to Phase II

DOE SBIR/STTR funding: Solicitation September, Phase I proposal due December, Winners ~May, get $100,000 for 9 months, Phase II proposal due April, Winners June, get $750,000 for 2 years

(see 11 PAC07 papers on progress)
Muons, Inc. Financial History
Last Year's Proposal Discussion
(underlined were repeats, yellow were submitted, white were not)

Muon Cooling Related

- **HTS Solenoid for 4D Muon Cooling**
- **HTS HCC for 6D Muon Cooling** *(AWARDED 2007!)*
- **Ceramic Windows for RF Couplers** *(HEP RF or ILC or NP RF)*
- **Cryogenic Pulse Compressors**
- **HTS Quench Protection**
- **Fast Rise-time Kicker** *(HEP ILC)*
- **Studies of Dog-Bone Linac Configurations**
- **Muon Polarization Selection study based on scattering**
- **Simulations of beam-beam tune shift for multiple IR mitigation**
- **Scifi detectors in LHe for 6DMANX** *(HEP DAQ)*
- **Stopping Muon Beam for MECO** *(AWARDED 2007!)*
- **TESLA cavities for muon acceleration**
Last Year's Diversification

- **Compact, Tunable RF Cavity (NP 27a or FFAG) (AWARDED 2007!)**
- **RF Breakdown Studies using pressurized RF cavities (HEP ILC)**
- **Positron Beam for Exotic Experiments (Van de Graaff, Na22 source, cryogenic moderator)**
- **Neutrino Beam for Oil Exploration (Submitted to NSF, announce ~Xmas)**
- **G4BL for HEP DAQ**
- **Ionization Cooling of Ions**
- **Ultrapure Metallic Deposition for RF Cavities**
- **Carbon 11 Cancer Therapy with Fast Digital Delivery---also ELIC prototype?**
# Priorities for 11/27/2007 Ph I

<table>
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<tr>
<th>Priority</th>
<th>Field</th>
<th>Priority</th>
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<tbody>
<tr>
<td>MC Achromatic Low beta Design</td>
<td>HEP</td>
<td>new</td>
</tr>
<tr>
<td>Dogbone RLA (pulsed quads, bends?)</td>
<td>HEP</td>
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<tr>
<td>G4BL Applications (HEP, medical,?)</td>
<td>NP</td>
<td>new</td>
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<tr>
<td>HTS Solenoid</td>
<td>HEP?</td>
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<tr>
<td>HTS Quench Protection</td>
<td>HEP?</td>
<td>2nd</td>
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<tr>
<td>HPRF in magnetic fields and beam</td>
<td>HEP</td>
<td>new</td>
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<tr>
<td>Metallic Deposition</td>
<td>BES, NP</td>
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<td>Fast Kickers</td>
<td>BES, NP</td>
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<tr>
<td>RF Breakdown Studies</td>
<td>BES, NP, HEP</td>
<td>2nd</td>
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**More discussion needed:**

- Accelerating high intensity bunches                                   | HEP       | new      |
- Plasma Lens for muon production                                        | HEP       | new      |
- SRF High-Power Couplers                                                | BES, NP   | 3rd      |
- Novel muon collection schemes                                          | NP, BES   | new      |
- Non-destructive Polarimeter                                            | NP        | new      |