Symmetry Energy Project (SEP) collaboration

Determination of the Equation of State of Asymmetric Nuclear Matter

NSCL MSU, USA: B. Tsang & W. Lynch,
Abigail Bickley, Gary Westfall, Pawel Danielewicz,
Edward Brown, Andrew Steiner
Rutgers University: Jolie Cizewski,
Smith College: Malgorzata Pfabe
University of Texas, El Paso: Jorge Lopez
Texas A&M University: Sherry Yennello
Western Michigan University: Michael Famiano
RIKEN, JP: Hiroshi Sakurai, Shunji Nishimura,
Yoichi Nakai, Atsushi Taketani
Kyoto University: Tetsuya Murakami
Rikkyo University, JP: Jiro Murata, Kazuo Ieki
Tohoku University: Akira Ono
GSI, DE: Wolfgang Trautmann, Yvonne Leifels, Marcus Bleicher
Daresbury Laboratory, UK: Roy Lemmon
INFN LNS, Catania, IT: Giuseppe Verde, Angelo Pagano,
Paulo Russotto, Massimo di Toro, Maria Colonna,
Aldo Bonasera, Vincenzo Greco
SUBATECH, FR: Christoph Hartnack
GANIL, FR: Abdou Chbihi, John Frankland, Jean-Pierre Wieleczo
China Institute of Atomic Energy: Yingxun Zhang, Zhuxia Li
Brazil: Sergio Souza, Raul Donangelo, Brett Carlson

Approved: DOE FOA proposal
(submitted 12/18/08):
$1.2 M includes US contributions to SAMARAI TPC

5th RIKEN PAC recommends completion of TPC in 2013.

http://groups.nscl.msu.edu/hira/sep.htm

First SAMURAI-TPC Collaboration meeting: Feb 19, 2010
Enclosure and manipulation fixtures, top plate, pad plane, wire planes
Field cage, VSD
Electronics …

SAMURAI dipole, LASER calibration system
Gas handling system, TPC mounting hardware, Target, beam tracking, TPC electronics and data acquisition, Ancillary trigger scintillation array

PD: Rebecca Shane, Alan McIntosh Zbignew Chajecki
Students: Suwat Tangwancharoen, Jon Barney,
Visitor: Will Powell, Fei Lu, Rensheng Wang
Undergraduates: Jon Barney, Justin Estee
Staff: Bob Olson, John Yukon,

Kyoto University: 2 Prof., 1 GS
Rikkyo University: 2 Prof, 2 GS
RIKEN: 6 staff persons and 2 exchange students
Collaboration structure

Why do we need a more structured collaboration

1. **SAMURAI Collaboration**: formed by users of SAMURAI dipole
   - They talk to RIKEN administration
   - They coordinate the SAMURAI experimental schedule
   - They recommend SAMURAI proposals

2. **Each SAMURAI experimental subgroup should be represented in SAMURAI collaboration**

3. **RIKEN would like to sign an MOU with MSU**

4. **MSU cannot represent sTPC collaboration.**

5. **We need more a formal SAMURAI collaboration**
   1. to represent and speak on the interest of the sTPC group in SAMURAI collaboration and RIKEN administration
   2. To ensure a long term operation and physics program of the sTPC after construction

**IDEAS**

1. Core groups (PI’s responsible to the completion of TPC
   + Associate member groups: Rights and responsibilities

2. Steering committee
   + Associate member groups: Rights and responsibilities

... 

Models:

*RHIC collaboration?? Discussions should continue over dinner*
## The project management and control milestones

<table>
<thead>
<tr>
<th>Milestone</th>
<th>location</th>
<th>Milestone date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(FY and quarter)</td>
</tr>
<tr>
<td>Conceptual Design</td>
<td>Chamber</td>
<td>NSCL+TAMU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3/15 2011</td>
</tr>
<tr>
<td>Detailed Design</td>
<td>Chamber</td>
<td>NSCL+TAMU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8/15 2011</td>
</tr>
<tr>
<td>Construction</td>
<td>Chamber</td>
<td>NSCL/subcontract</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q3 2012</td>
</tr>
<tr>
<td>Conceptual Design</td>
<td>Detector</td>
<td>NSCL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3/15 2011</td>
</tr>
<tr>
<td>Detailed Design</td>
<td>Detector</td>
<td>NSCL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q4 2011</td>
</tr>
<tr>
<td>Construction and Assembly</td>
<td>TPC</td>
<td>NSCL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q4 2012</td>
</tr>
<tr>
<td>Test</td>
<td>TPC</td>
<td>NSCL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q2 2013</td>
</tr>
<tr>
<td>contingency</td>
<td>TPC</td>
<td>NSCL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q3 2013</td>
</tr>
<tr>
<td>Ship</td>
<td>TPC</td>
<td>NSCL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q4 2013</td>
</tr>
<tr>
<td>Install &amp; Test</td>
<td>TPC</td>
<td>RIKEN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q1 2014</td>
</tr>
<tr>
<td>Commissioning</td>
<td>TPC</td>
<td>RIKEN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q2 2014</td>
</tr>
<tr>
<td>Reconfigure new electronics</td>
<td>TPC</td>
<td>RIKEN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q2 2015</td>
</tr>
<tr>
<td>$\pi^+$/-$\pi^-$ experiment</td>
<td>TPC</td>
<td>RIKEN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q3 2014</td>
</tr>
<tr>
<td>n/p experiment</td>
<td>GSI</td>
<td>Q2 2011</td>
</tr>
</tbody>
</table>
Contributions by collaborators

Models:

1. MSU provides lodging
   Will Power: Liverpool
   Rensheng Wang: Tsinghua University

2. Fellowship in RIKEN
   with Liverpool – Will Power
   with GSI -- Ann-Kathrine Perrevoort