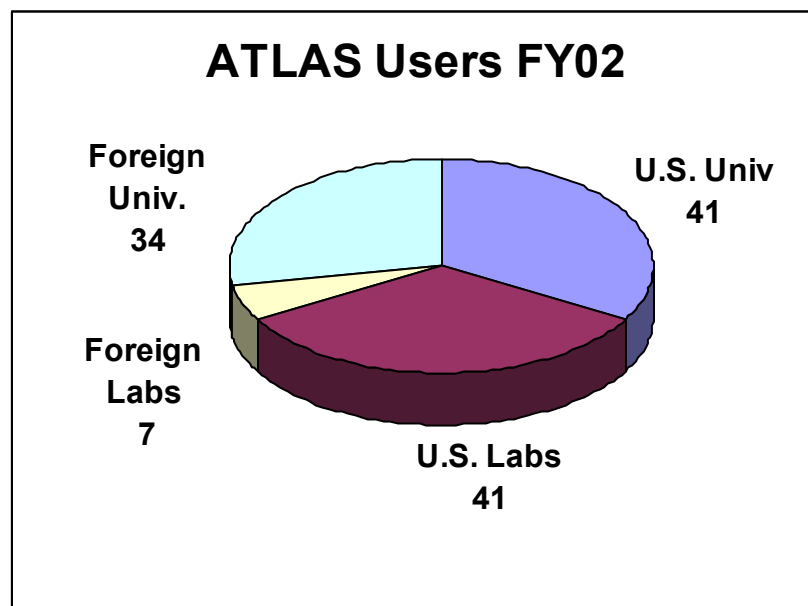


## H. ATLAS USER PROGRAM

E. F. Moore

During the fiscal year 2002, ATLAS hosted strong “campaigns” involving radioactive beams, the CPT, the super-heavy element program, as well the AMS program. Some of these programs were driven by outside Users, and in all programs, there was considerable outside User involvement. Over 95% of all experiments performed in fiscal year 2002 included one or more outside Users and roughly 50% of the approved experiments had an outside User as the Principal Investigator. Frank Moore continued to be available in a user liaison capacity to handle the scheduling of ATLAS experiments, provide assistance in experiment proposal submission matters, and help facilitate the effective performance of research at ATLAS by outside scientists. In addition, a large portion of the heavy-ion in-house scientific staff and members of the technical support staff spent time in experiment setup, preparation, and assistance for the many different experiments performed at ATLAS.

A total of 123 Users from 47 different institutions were present at ATLAS for experiments in FY 2002. The pie chart below shows the distribution of the institutions represented by ATLAS Users and the number of Users of each type. Of the 41 Users from U.S. National Laboratories, 32 are from Argonne (27 from the Physics Division, 5 from other divisions). There were 32 students at ATLAS for experiments this FY, of which 11 were based at Argonne long-term. The names and institutions of all outside Users who were present at ATLAS in FY 2002 are listed below in section (b).



The Program Advisory Committee met twice during the 2002 fiscal year, on October 5, 2001 and May 3, 2002, to recommend experiments for beam time allocation at ATLAS. In FY 2002 the Program Advisory Committee members were:

**October 5, 2001**

James Beene  
 Jolie Cizewski  
 Stuart Freedman  
 David Morrissey  
 Lee Riedinger (*chair*)  
 Robert Tribble  
 Alan Wuosmaa

Oak Ridge National Laboratory  
 Rutgers University  
 University of California  
 Michigan State University  
 University of Tennessee  
 Texas A&M University  
 Argonne National Laboratory

May 3, 2002

Art Champagne	University of North Carolina, Chapel Hill
James Beene	Oak Ridge National Laboratory
Jolie Cizewski	Rutgers University
Stuart Freedman	University of California
Augusto Macchiavelli	Lawrence Berkeley National Laboratory
David Morrissey	Michigan State University
Alan Wuosmaa	Western Michigan University

The PAC reviewed 30 proposals for 170 days of requested running time at the October meeting, and 29 proposals for 137 days at the May meeting. Due to the reduction of available beam time with 5-day/week operation for the entire FY, the PAC was asked to prioritize experiments into two categories: those that must be run at any cost (*priority I*), and those that should be granted beam time if at all possible (*priority II*). Of the submitted proposals for the two meetings, the Program Advisory Committee recommended priority I acceptance of 35 proposals for a total of 152 days of running time, and priority II acceptance of 12 proposals for 59 additional days of beam time.

The fall meeting of the American Physical Society, Division of Nuclear Physics was held in East Lansing, MI, from October 9-12, 2002. The U.S. national nuclear laboratories with low-energy heavy-ion facilities; ATLAS at Argonne, HRIBF at Oak Ridge, the 88" cyclotron at Lawrence Berkeley National Laboratory, and the NSCL at Michigan State University held a joint Users Meeting. The Chair of the ATLAS Users Group Executive Committee, Prof. Jolie Cizewski (U. Rutgers), introduced the ATLAS user program, and Frank Moore, Cary Davids, and Guy Savard presented an overview of the ATLAS facility and some elements of the current physics program. Mike Carpenter discussed preparations for the return of Gammasphere to ATLAS in FY 2003. There were approximately 100 scientists in attendance at the meeting.

In FY 2002 the ATLAS Executive Committee consisted of Jolie Cizewski (Rutgers University) as Chairperson, Michael Wiescher (University of Notre Dame), Partha Chowdhury (University Massachusetts, Lowell), and Gene Sprouse (SUNY Stony Brook).

#### a. Experiments Involving Outside Users

All experiments in which outside users directly participated during FY 2002 are listed below. The spokesperson for each experiment is given in square brackets after the title, and the collaborators who were present for the experiment are given with their home institution (as of the end of the FY) below each entry.

1. Test of New FMA Focal Plane Microchannel Plate Detector [Lister]  
G. Mukherjee, University of Massachusetts, Lowell; S. Freeman, University of Manchester; J. Amann, S. Fischer, De Paul University; N. Hammond, R. Janssens, K. Lister, E. Moore, S. Sinha, Argonne National Lab.
2. Study of the  $^8\text{B}$  Neutrino Spectrum Through the  $^8\text{B}(\beta^+)^8\text{Be}(2\alpha)$  Decay Chain-II [Freedman]  
S. Freedman, University of California; W. Winter, Lawrence Berkeley National Lab.; J. Greene, D. Henderson, R. Janssens, C. Jiang, E. Moore, R. Pardo, T. Pennington, K. Rehm, G. Savard, J. Schiffer, G. Zinkann, Argonne National Lab.
3. Measurement of the  $^{17}\text{F}$  Breakup Cross Section at the Barrier [Romoli]  
F. Soramel, Università di Udine; M. Mazzocco, University of Padova; M. La Commara, E. Vardaci, University of Naples; A. Guglielmetti, University of Milano; J. Liang, Oak Ridge National Laboratory; L. Stroe, Lab. Nazionali di Legnaro; M. Romoli, I.N.F.N. Sezione di Napoli; M. Di Pietro, M. Pierrotsakou, I.N.F.N.; A. Heinz, GSI, Darmstadt; J. Greene, D. Henderson, C. Jiang, E. Moore, R. Pardo, K. Rehm, A. Wuosmaa, Argonne National Lab.

4. Measurement of Helium-3 to Helium-4 Ratios in Isotopically Purified Helium [Doyle]  
J. Caggiano, Yale University; P. Huffman, National Institute of Standards & Technology; D. McKinsey, Harvard University; A. Heinz, GSI, Darmstadt; P. Collon, R. Scott, Columbia University; R. Janssens, C. Jiang, D. Moehs, R. Pardo, K. Rehm, J. Schiffer, R. Vondrasek, Argonne National Lab.
5. Test of the RIA Gas Cell Prototype [Savard]  
J. Caggiano, Yale University; J. Clark, K. Sharma, J. Vaz, University of Manitoba; W. Trimble, University of Chicago; C. Boudreau, McGill University; A. Heinz, GSI, Darmstadt; B. Blank, J. Greene, D. Henderson, A. Levand, E. Moore, R. Pardo, K. Rehm, G. Savard, J. Schwartz, D. Seweryniak, J. Wang, Argonne National Lab.
6. Studies of Sub-ms Proton and  $\alpha$  Emitters [Seweryniak]  
A. Woehr, University of Maryland; A. Heinz, GSI, Darmstadt; M. Carpenter, C. Davids, D. Seweryniak, Argonne National Lab.
7. Preparations Towards a Search for Super-Heavy Elements at ATLAS: PHASE I [Heinz]  
A. Woehr, University of Maryland; M. Smith, TRIUMF; A. Heinz, GSI, Darmstadt; P. Collon, Columbia University; I. Ahmad, B. Back, M. Carpenter, R. Janssens, C. Jiang, T. Khoo, F. Kondev, T. Lauritsen, K. Lister, E. Moore, G. Savard, J. Schiffer, D. Seweryniak, Argonne National Lab.
8. Establishing the Deformation of  $^{140}\text{Dy}$  From Measurement of the Delayed Decay of the  $K^\pi = 8^-$  Isomeric State [Cullen]  
C. Wheldon, University of Surrey; D. Cullen, A. Fletcher, S. Freeman, L. Pattison, J. Smith, University of Manchester; A. Bruce, University of Brighton; M. Carpenter, R. Janssens, K. Lister, D. Seweryniak, Argonne National Lab.
9. Patterning of Columnar Defects with LiGA and Heavy Ion Lithography in High Temperature Superconductors [Kwok]  
L. Undreiu, Western Michigan University; W. Kwok, G. Karapetrov, Argonne National Lab.
10. The  $^{56}\text{Ni}(^3\text{He},p)$  Reaction and the Question of  $T = 0$ ,  $T = 1$  Pairing in  $N = Z$  Nuclei [Macchiavelli]  
G. Mukherjee, University of Massachusetts, Lowell; P. Fallon, A. Macchiavelli, Lawrence Berkeley National Lab.; A. Heinz, GSI, Darmstadt; C. Jiang, R. Pardo, K. Rehm, J. Schiffer, Argonne National Lab.
11. High-K Isomers in  $^{254}\text{No}$  by Electron and  $\gamma$  Spectroscopy [Khoo]  
P. Butler, G. Jones, University of Liverpool; M. Smith, TRIUMF; J. Cizewski, Rutgers University; A. Heinz, GSI, Darmstadt; I. Ahmad, M. Carpenter, C. Davids, R. Janssens, T. Khoo, T. Lauritsen, K. Lister, D. Seweryniak, Argonne National Lab.
12. Tests of a New Scattering Chamber at the FMA [Heinz]  
J. Shergur, A. Woehr, University of Maryland; K. Abu Saleem, Illinois Institute of Technology; A. Heinz, GSI, Darmstadt; R. Scott, Columbia University; I. Ahmad, M. Carpenter, J. Greene, D. Henderson, R. Janssens, C. Jiang, T. Khoo, F. Kondev, T. Lauritsen, K. Lister, E. Moore, R. Pardo, T. Pennington, G. Savard, J. Schiffer, D. Seweryniak, R. Vondrasek, Argonne National Lab.
13. Study of the  $^8\text{B}$  Neutrino Spectrum Through the  $^8\text{B}(\beta^+)^8\text{Be}(2\alpha)$  Decay Chain-III [Freedman]  
G. Mukherjee, University of Massachusetts, Lowell; S. Freedman, University of California; W. Winter, Lawrence Berkeley National Lab.; M. Paul, Hebrew University of Jerusalem; A. Heinz, GSI, Darmstadt; J. Greene, D. Henderson, R. Janssens, C. Jiang, E. Moore, R. Pardo, T. Pennington, K. Rehm, J. Schiffer, D. Seweryniak, G. Zinkann, Argonne National Lab.

14. Proton Decay of High-Z Nuclei [Davids]  
G. Mukherjee, University of Massachusetts, Lowell; J. Shergur, W. Walters, A. Woehr, University of Maryland; S. Robinson, University of Manchester; A. Mahmud, P. Munro, P. Woods, University of Edinburgh; A. Heinz, GSI, Darmstadt; A. Sonzogni, Brookhaven National Laboratory; C. Davids, D. Seweryniak, Argonne National Lab.
15. Continuation of the Mass Measurement Program Along the N=Z Line with the CPT Mass Spectrometer [Savard]  
L. Blomeley, J. Clark, M. Froese, K. Sharma, J. Vaz, University of Manitoba; D. Lascar, University of Chicago; J. Hardy, Texas A & M University; C. Boudreau, T. Cocolios, J. Crawford, S. Gulick, McGill University; A. Heinz, GSI, Darmstadt; A. Frankel, Cornell University; G. Savard, D. Seweryniak, J. Wang, Z. Zhou, Argonne National Lab.
16. Proton Decay of  $^{121}\text{Pr}$  and  $^{125}\text{Pm}$  [Davids]  
G. Mukherjee, University of Massachusetts, Lowell; J. Shergur, A. Woehr, University of Maryland; P. Munro, A. Robinson, P. Woods, University of Edinburgh; A. Heinz, GSI, Darmstadt; C. Davids, D. Seweryniak, Argonne National Lab.
17. Nucleosynthesis Chronometers  $^{182}\text{Hf}$ ,  $^{244}\text{Pu}$ : Detection by Accelerator Mass Spectrometry [Paul]  
G. Mukherjee, University of Massachusetts, Lowell; M. Paul, Hebrew University of Jerusalem; A. Heinz, GSI, Darmstadt; R. Scott, Columbia University; C. Davids, R. Janssens, C. Jiang, F. Kondev, R. Pardo, K. Rehm, D. Seweryniak, R. Vondrasek, Argonne National Lab.
18. Commissioning of the Split Anode for the First Electric Dipole of the FMA [Davids]  
A. Robinson, University of Edinburgh; C. Davids, D. Henderson, T. Pennington, D. Seweryniak, Argonne National Lab.
19. Test of Fast Shaping Amplifiers for the Double-Sided Silicon Strip Detector [Davids]  
G. Mukherjee, University of Massachusetts, Lowell; J. Shergur, A. Woehr, University of Maryland; P. Munro, P. Woods, University of Edinburgh; A. Heinz, GSI, Darmstadt; C. Davids, D. Seweryniak, S. Sinha, P. Wilt, Argonne National Lab.
20. Survival Probability of Excited Hs Nuclei [Loveland]  
R. Charity, S. Komarov, Washington University; K. Aleklett, C. Rouki, Uppsala University; W. Loveland, D. Peterson, R. Yanez, Oregon State University
21. Dependence of the Level-Density Parameter on the Neutron-Proton Asymmetry [Charity]  
R. Charity, S. Komarov, D. Sarantites, L. Sobotka, Washington University; W. Loveland, Oregon State University; A. Caraley, Indiana University Cyclotron Facility
22. Coulomb Excitation of  $^{128,130,132,134,136}\text{Xe}$  [Mueller]  
J. Enders, A. Gade, T. Glasmacher, Z. Hu, K. Miller, W. Mueller, H. Olliver, B. Perry, Michigan State University; M. Carpenter, D. Henderson, R. Janssens, E. Moore, T. Pennington, Argonne National Lab.
23. Heavy Recoil Ion Test of an Upgraded MWPC for Nano- to Pico-Barn Cross-Section Experiments [Pennington]  
G. Mukherjee, University of Massachusetts, Lowell; J. Shergur, University of Maryland; B. Truett, Purdue University, Calumet; C. Davids, D. Henderson, K. Lister, T. Pennington, D. Seweryniak, Argonne National Lab.
24. AMS for  $^{39}\text{Ar}$ : First Application of Dating Ocean Water [Collon]  
W. Kutschera, Universität Wien; R. Golser, University of Vienna; M. Paul, Hebrew University of Jerusalem; A. Heinz, GSI, Darmstadt; P. Collon, R. Scott, Columbia University; I. Ahmad, C. Jiang, R. Pardo, K. Rehm, R. Vondrasek, G. Zinkann, Argonne National Lab.

25. Development of a  $^{37}\text{K}$  Beam for a Measurement of the  $^{34}\text{Ar}(\alpha,p)^{37}\text{K}$  Reaction [Rehm]  
G. Mukherjee, University of Massachusetts, Lowell; L. Jisonna, R. Segel, Northwestern University;  
A. Heinz, GSI, Darmstadt; J. Greene, D. Henderson, R. Janssens, C. Jiang, E. Moore, R. Pardo,  
T. Pennington, K. Rehm, J. Schiffer, S. Sinha, Argonne National Lab.
26. Study of the Branching Ratio of the 4.033 MeV  $3/2^+$  State in  $^{19}\text{Ne-II}$  [Rehm]  
R. Siemssen, University of Groningen; L. Jisonna, R. Segel, Northwestern University; M. Paul, Hebrew  
University of Jerusalem; A. Heinz, GSI, Darmstadt; J. Greene, D. Henderson, R. Janssens, C. Jiang,  
R. Pardo, K. Rehm, J. Schiffer, A. Wuosmaa, Argonne National Lab.
27. Effects of Ion Irradiation in Superconducting  $\text{MgB}_2$  Single Crystals [Karapetrov]  
M. Hughes, University of California, San Francisco; G. Karapetrov, W. Kwok, Argonne National Lab.
28. Search for  $^{105}\text{Te}$  and the Fine Structure in the  $\alpha$ -Decay of  $^{111}\text{Xe}$  [Seweryniak]  
G. Mukherjee, University of Massachusetts, Lowell; J. Shergur, University of Maryland; A. Robinson,  
University of Edinburgh; M. Lipoglavsek, M. Vencelj, Jozef Stefan Institute; A. Heinz, GSI, Darmstadt;  
D. Seweryniak, Argonne National Lab.
29. Continuation of the Mass Measurement Program Along the  $N=Z$  Line With the CPT Mass Spectrometer:  
Completion of the Mass 68 Measurement [Savard]  
L. Blomeley, J. Clark, M. Froese, K. Sharma, J. Vaz, University of Manitoba; D. Lascar, W. Trimble,  
University of Chicago; T. Cocolios, J. Crawford, McGill University; A. Heinz, GSI, Darmstadt;  
B. Blank, A. Levand, G. Savard, D. Seweryniak, J. Wang, Z. Zhou, Argonne National Lab.
30. The  $^{56}\text{Ni}(^3\text{He},p)$  Reaction and the Question of  $T=0$ ,  $T=1$  Pairing in  $N=Z$  Nuclei [Macchiavelli]  
G. Mukherjee, University of Massachusetts, Lowell; J. Cizewski, Rutgers University; M. Cromaz,  
A. Goergen, I. Lee, A. Macchiavelli, Lawrence Berkeley National Lab.; M. Paul, Hebrew University of  
Jerusalem; A. Heinz, GSI, Darmstadt; I. Ahmad, C. Davids, J. Greene, D. Henderson, R. Janssens,  
C. Jiang, E. Moore, R. Pardo, T. Pennington, K. Rehm, J. Schiffer, D. Seweryniak, S. Sinha, Argonne  
National Lab.
31. Fast Proton Decay of Odd-Odd  $^{150}\text{Lu}$  [Davids]  
G. Mukherjee, University of Massachusetts, Lowell; A. Robinson, P. Woods, University of Edinburgh;  
B. Blank, C. Davids, D. Seweryniak, S. Sinha, Argonne National Lab.
32. Proposal to Measure the Total Radiative Capture Cross Section for the  $^{12}\text{C} + ^{12}\text{C}$  System [Jenkins]  
B. Fulton, University of York; F. Haas, Université Louis Pasteur; G. Mukherjee, University of  
Massachusetts, Lowell; S. Freeman, University of Manchester; D. Jenkins, University of Liverpool;  
M. Carpenter, N. Hammond, R. Janssens, K. Lister, D. Seweryniak, Argonne National Lab.
33. Identification of Low-Lying, Low-Spin States in  $^{74}\text{Rb}$  and  $^{78}\text{Y}$  [Fischer]  
G. Mukherjee, University of Massachusetts, Lowell; S. Fischer, De Paul University; M. Carpenter,  
N. Hammond, R. Janssens, K. Lister, E. Moore, Argonne National Lab.
34. Spins of Excited States in  $^9\text{Li}$  and the Nuclear Three-Body Force [Wuosmaa]  
A. Wuosmaa, Western Michigan University; A. Heinz, GSI, Darmstadt; J. Greene, R. Pardo, K. Rehm,  
S. Sinha, Argonne National Lab.
35. Radiative Capture and Fusion Dynamics in the Cold Fusion  $^{90}\text{Zr} + ^{92}\text{Mo}$  Reaction [Carpenter]  
G. Mukherjee, University of Massachusetts, Lowell; D. Jenkins, University of Liverpool; A. Heinz, GSI,  
Darmstadt; I. Ahmad, M. Carpenter, C. Davids, N. Hammond, D. Henderson, R. Janssens, T. Khoo,  
F. Kondev, T. Lauritsen, K. Lister, E. Moore, T. Pennington, D. Seweryniak, S. Sinha, Argonne  
National Lab.

36. Silver Ion Implantation in Silicon Carbide [MacLean]  
H. MacLean, Massachusetts Institute of Technology; R. Scott, R. Pardo, R. Vondrasek, Argonne National Lab.

**b. Outside Users of ATLAS During the Period October 1, 2001 - September 30, 2002**

This list includes all outside Users who were an experiment spokesperson (a), alternate spokesperson (b), student (\*), or collaborator actually present at ATLAS for an experiment. An additional 22 Users listed as collaborators on the various experiment proposals were not at ATLAS in person, and thus are not represented in the list below.

- |  |   |
|--|---|
| 1. Brookhaven National Laboratory<br>A. Sonzogni                 | 14. Lawrence Berkeley National Lab.<br>M. Cromaz<br>P. Fallon<br>A. Goergen<br>I. Lee   |
| 2. Columbia University<br>a    P. Collon                         | 15. Massachusetts Inst. of Technology<br>b    T. Antaya<br>a    H. MacLean  |
| 3. Cornell University<br>*    A. Frankel                         | 16. McGill University<br>*    C. Boudreau<br>*    T. Cocolios<br>J. Crawford<br>S. Gulick   |
| 4. De Paul University<br>*    J. Amann<br>a    S. Fischer        | 17. Michigan State University<br>J. Enders<br>A. Gade<br>b    T. Glasmacher<br>Z. Hu<br>*    K. Miller<br>a    W. Mueller<br>*    H. Olliver<br>*    B. Perry |
| 5. GSI, Darmstadt<br>ab   A. Heinz                               | 18. Nat'l. Inst. Of Standards & Tech.<br>P. Huffman   |
| 6. Harvard University<br>a    J. Doyle<br>*    D. McKinsey       | 19. Northwestern University<br>*    L. Jisonna<br>R. Segel  |
| 7. Hebrew University of Jerusalem<br>a    M. Paul                | 20. Oak Ridge National Laboratory<br>J. Liang   |
| 8. I.N.F.N.<br>M. Di Pietro                                      | 21. Oregon State University<br>a    W. Loveland<br>b    D. Peterson<br>R. Yanez   |
| 9. I.N.F.N. Sezione di Napoli<br>a    M. Romoli<br>M. La Commara |   |
| 10. Illinois Institute of Technology<br>*    K. Abu Saleem       |   |
| 11. Indiana University Cyclotron Facility<br>A. Caraley          |   |
| 12. Jozef Stefan Institute<br>M. Lipoglavsek<br>*    M. Vencelj  |   |
| 13. Lab. Nazionali di Legnaro<br>L. Stroe                        |   |

22. Purdue University, Calumet  
\* B. Truett
23. Rutgers University  
J. Cizewski
24. TRIUMF  
M. Smith
25. Texas A & M University  
J. Hardy
26. Université Louis Pasteur  
F. Haas
27. University of Brighton  
A. Bruce
28. University of California  
a S. Freedman
29. University of California, San Francisco  
\* M. Hughes
30. University of Chicago  
\* D. Lascar  
\* W. Trimble
31. University of Edinburgh  
\* A. Mahmud  
\* P. Munro  
\* A. Robinson  
b P. Woods
32. University of Groningen  
R. Siemssen
33. University of Liverpool  
P. Butler  
a D. Jenkins  
G. Jones
34. University of Manchester  
a D. Cullen  
\* A. Fletcher  
S. Freeman  
\* L. Pattison  
\* S. Robinson  
J. Smith
35. University of Manitoba  
\* L. Blomeley  
b\* J. Clark  
\* M. Froese  
K. Sharma  
\* J. Vaz
36. University of Maryland  
\* J. Shergur  
b W. Walters  
A. Woehr
37. University of Massachusetts, Lowell  
G. Mukherjee
38. University of Milano  
A. Guglielmetti
39. University of Naples  
E. Vardaci
40. University of Padova  
\* M. Mazzocco
41. University of Surrey  
\* C. Wheldon
42. University of Vienna  
R. Golser
43. University of York  
B. Fulton
44. Universität Wien  
b W. Kutschera
45. Università di Udine  
F. Soramel
46. Uppsala University  
K. Aleklett  
\* C. Rouki
47. Washington University  
a R. Charity  
\* S. Komarov  
D. Sarantites  
b L. Sobotka
48. Western Michigan University  
\* L. Undreiu  
a A. Wuosmaa
49. Yale University  
J. Caggiano

