



WISCONSIN
UNIVERSITY OF WISCONSIN-MADISON

Department of Physics

- State of the Department
- AY 2020-2021



Welcome PhD & MSQC Grads !!

Physics Ph.D. Program Class of 2020

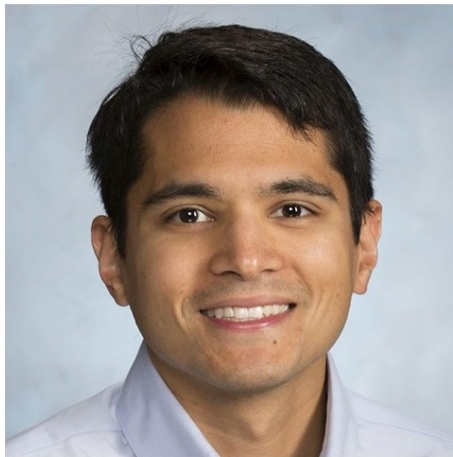


*defer to Spring 2021 (Avani Vivrekar & Hoi Tung "Jacky" Yip)

MSPQC Program Class of 2020



Welcome New Faculty Colleagues !



JEFF PARKER

Assistant Professor
jbparker3@wisc.edu
Plasma



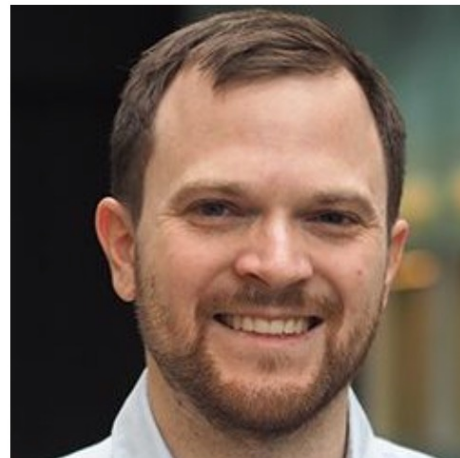
UWE BERGMANN

Martin L. Perl Endowed Professor in
Ultrafast X-Ray Science
ubergmann@wisc.edu



KE FANG

Assistant Professor
kefang@stanford.edu
IceCube



**MORITZ CORNELIUS
MUENCHMEYER**

Assistant Professor
muenchmeyer@wisc.edu
Cosmology



LU LU

Assistant Professor
llu83@wisc.edu
IceCube

College Financial Position (Good News!)

- We are in a strong financial position
- Situation much different than 5 years ago
- Contributing factors
 - Revenue-generating (131/VISP) programs
 - Summer term
 - Philanthropy
 - **Undergraduate enrollment expansion**



August 27, 2019

L&S Plenary Meeting



Recent estimates suggest that UW–Madison will incur an overall financial impact well in excess of \$150 million even before the additional loss of state funds is factored in.

Summer enrollments were up. Fall enrollments are not bad.

Smart Restart Status ...

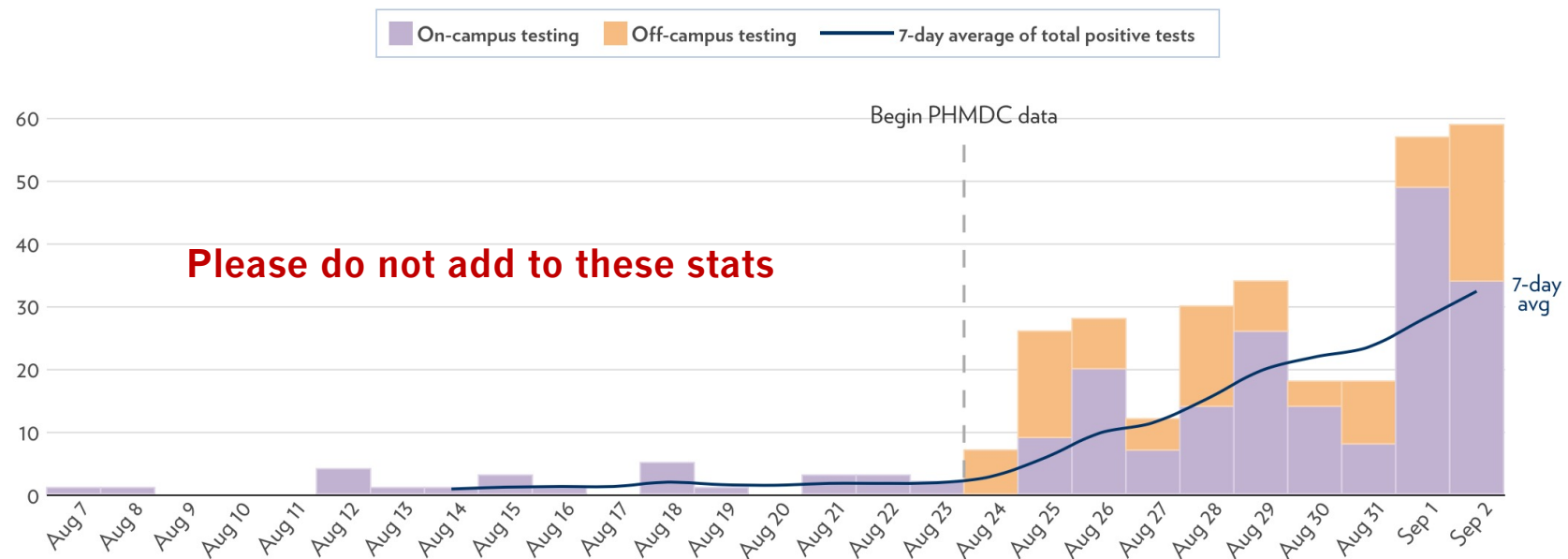
A Smart Return to Campus for Fall 2020

We all have a role in protecting the health and safety of our Badger community.

The University of Wisconsin-Madison will welcome students back to campus as scheduled for the start of fall classes on September 2. To ensure a “Smart Restart” amid the COVID-19 pandemic, we are developing a comprehensive plan for resuming campus activities.



New Positive Tests Reported By Day



Thank You

Use this form to register access to Chamberlin and Sterling Hall. To get approval for work in the building, Pls should first [submit a request](#) to campus administration. The form below is then used to coordinate and document our use of the building in accordance with the agreed upon constraints.

Brief visits for activities such as retrieving items from offices may be scheduled here but must wait for approval from administration, so please plan ahead.

Before entering the building, you must complete [COVID-19 Safety Training](#). See also [Guidelines for working in Chamberlin and Sterling Hall](#), [Smart Restart Health and Safety](#), [COVID-19 Positive or Direct Exposure Protocol](#), and [Physics Stage 2 Reopening Plan](#). There is also a [density map](#) for instructional activities that may be helpful.

[←](#) [Today](#) [→](#) Fri, Sep 4, 2020

Three large adaptations: Post Spring Break Remote, Summer Remote and Fall Hybrid Mode

- Steve Narf, Brett Unks, Jim Reardon, Mark Rzchowski, Allison Tredinnick, Dan Bradley, Chad Seys

Large effort in Phased Research Restart over Summer

- Dan Bradley, Aimee Lefkow, Mark Saffman, John Sarff

All the Faculty and TAs teaching in person valiantly

Spring Ceremonies

Virtual Events

- Virtual Awards Ceremony, May 7, 2020
- Virtual Graduation Ceremony, May 8, 2020
- Distinguished Alumni Award Ceremony postponed to 2021
- **Dr. Nancy Brickhouse and Dr. Geoff Fox**
- Virtual MSQC Graduation Ceremony, August , 2020



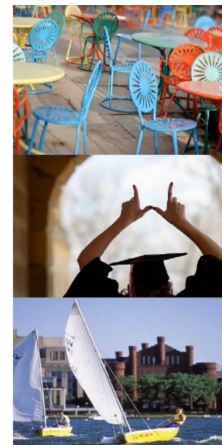
The Department of Physics
2020 Virtual Graduation Reception
Friday, May 8, 2020 3:00pm

Welcoming Remarks
Prof. Sridhara Dasu, Physics Department Chair

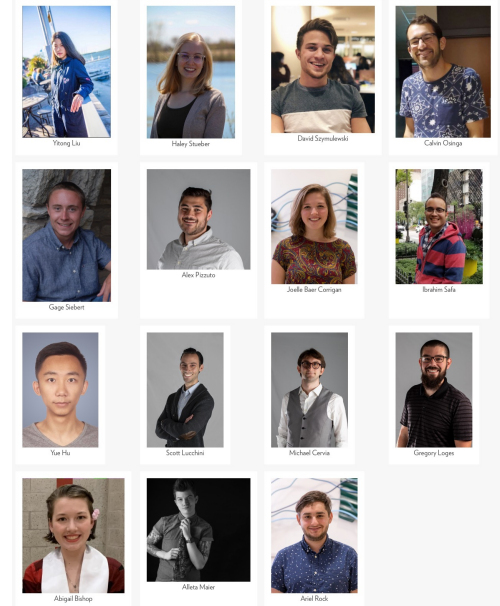
Physics Learning Center
Dr. Susan Nossal

Recognition of Accomplishments
Prof. Mark Rzczowski, Associate Chair

Presentation of Graduating Undergraduates and PhD Graduates
Prof. Sridhara Dasu, Physics Department Chair
Prof. Mark Rzczowski, Associate Chair



AWARD AND SCHOLARSHIP RECIPIENTS

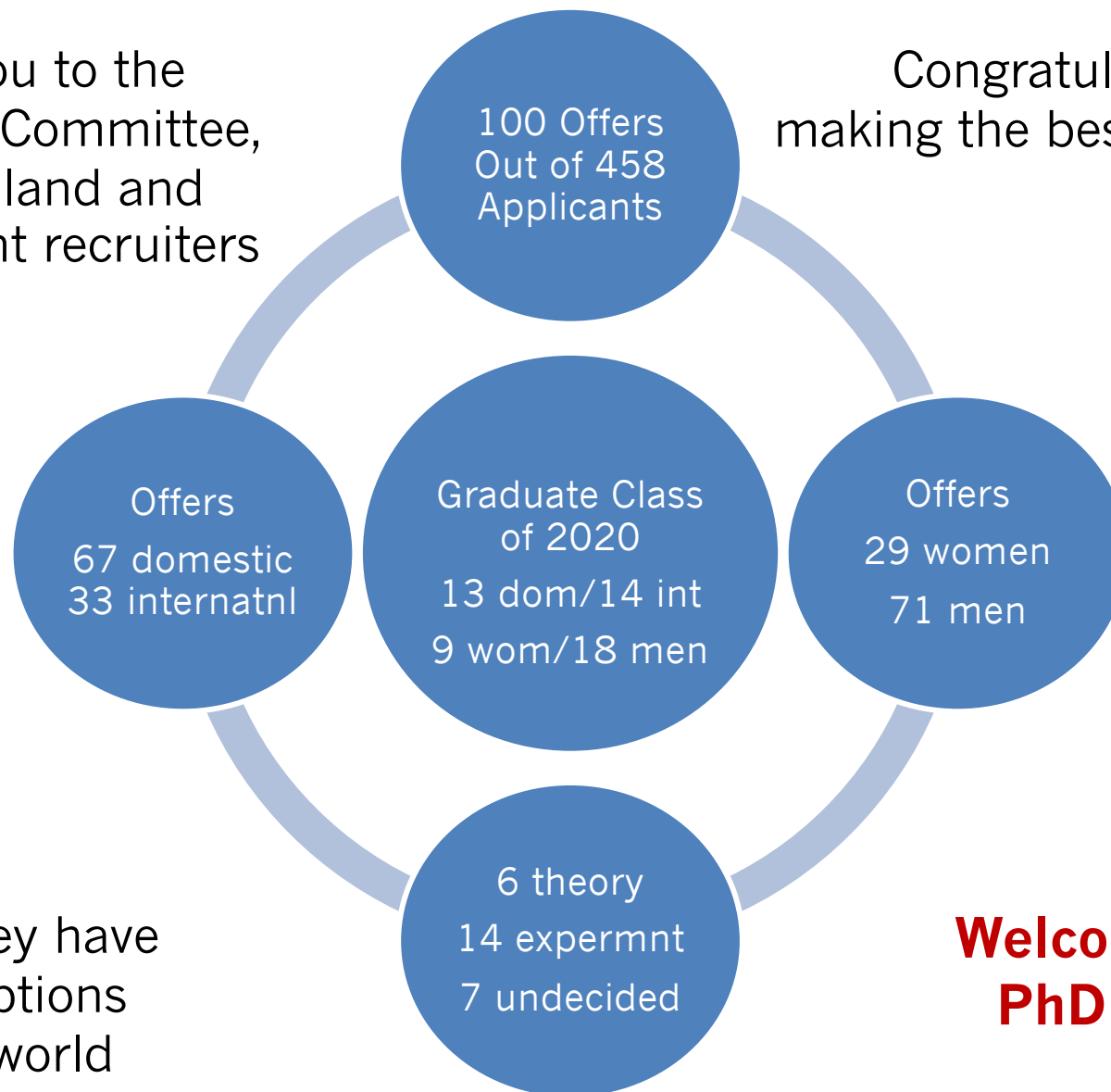


They are amongst the best

Big thank you to the
Admissions Committee,
Michelle Holland and
Grad Student recruiters

Congratulations to them for
making the best possible choice!

2020 APPLICATIONS
REVIEWED: 458
241 domestic (53%)
217 international (47%)
378 male (83%)
80 female (17%)

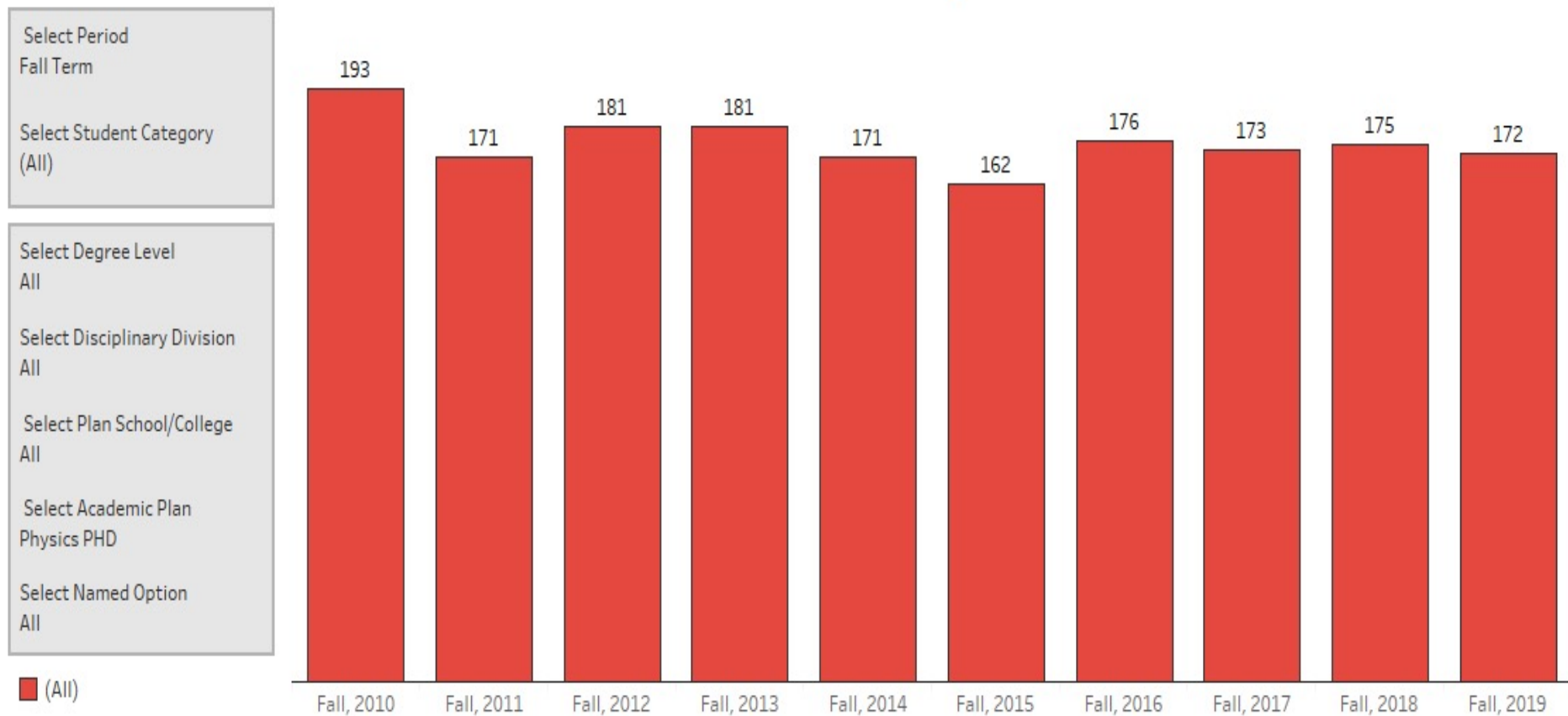


We know they have
had other options
around the world

**Welcoming a diverse
PhD class again!!**

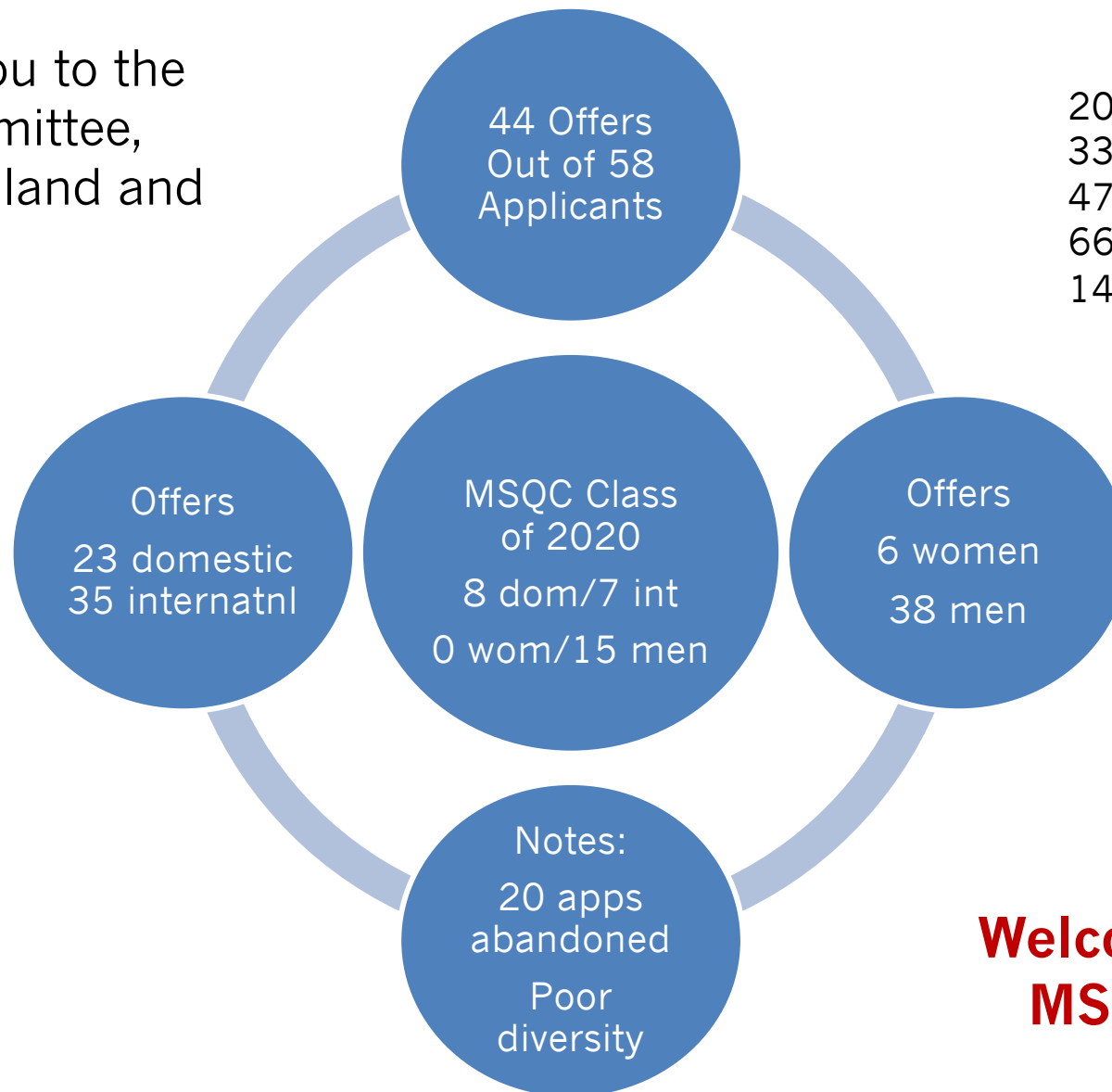
PhD Student Counts by Year

Total Enrollment in Graduate School Programs



Growing Interest in the Program

Big thank you to the
MSQC Committee,
Michelle Holland and
Bob Joynt



2020 MSQC STARTED: 80
33 domestic (41%)
47 international (59%)
66 male (83%)
14 female (17%)

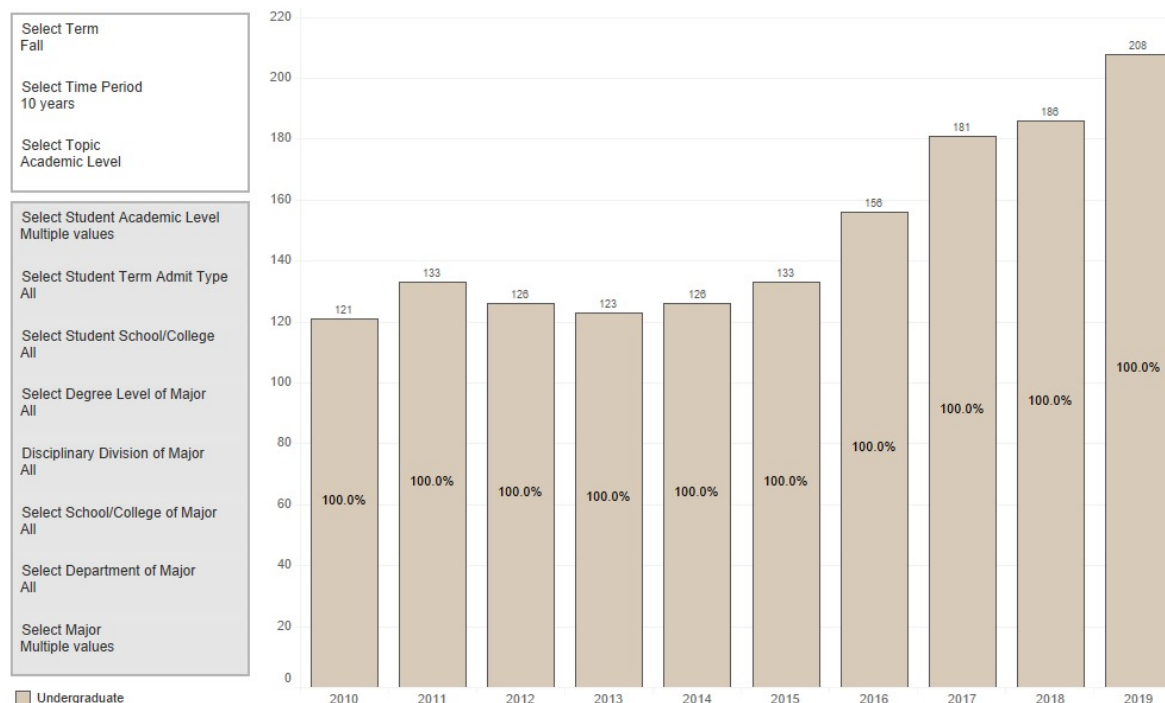
**Welcoming Second
MSQC Cohort!!**

Growing Interest in the Physics Major

Admissions are handled centrally by UW – we just try to encourage physics major choice through majors fair and department events.

Should step this up!

Headcounts of Degree-Seeking Students



This visualization was created by Academic Planning and Institutional Research (APIR). Questions, feedback, or accessibility requests should be directed to APIR, apir@provost.wisc.edu.

Public

University of Wisconsin-Madison

Trends in New Freshman Applicants, Admits, and Enrollments in Fall Semesters

	Applicants	Admits	Enrolled	Admission Rate (% of Applicants Admitted)	Yield Rate (% of Admits who Enroll)
2017	35,615	19,150	6,610	53.8	34.5
2018	42,741	22,099	6,862	51.7	31.1
2019	43,921	23,887	7,550	54.4	31.6

Concern: COVID19, On campus teaching, especially labs ☹

Physics Faculty & Directors

Physics Faculty

Department Chair



Professor Sridhara Dasu
High Energy Physics
2320A Chamberlin
4289 Chamberlin
phone: 262.3678
dasu@hep.wisc.edu

Associate Chair



Professor Mark Rzechowski
Condensed Matter Theory
5328 Chamberlin
phone: 265.2876
rzechowski@physics.wisc.edu

Associate Chair, Alumni Relations & Board of Visitors



Professor Bob Jyot
Condensed Matter Theory
5328 Chamberlin
phone: 263.4169
rjyot@wisc.edu



Assoc. Prof. Yang Bai
Phenomenology
5211 Chamberlin
phone: 265.3242
yangbai@physics.wisc.edu



Professor Baha Balantekin
Astro Theory, High Energy
Theory, Neu/Nuc Theory
5277 Chamberlin
phone: 263.7931
baha@physics.wisc.edu



Professor Vernon Barger
Phenomenology
5295 Chamberlin
phone: 262.8908
barger@physics.wisc.edu



Asst. Prof. Keith Bechtol
Experimental Astro and Cosmology
6203 Chamberlin
phone: 262.5916
kbechtol@wisc.edu



Professor Uwe Bergmann
bergmann@wisc.edu



Professor Kevin Black
High Energy Physics
4217 Chamberlin
phone: 262.1232
kblack@hep.wisc.edu



Professor Stanislav Boldyrev
Plasma Theory
3273 Chamberlin
phone: 262.2338
boldyrev@wisc.edu



Professor Tulika Bose
High Energy Physics
4223 Chamberlin
phone: 262.8894
tbose@wisc.edu



Asst. Prof. Victor Brar
Condensed Matter Experiment
5332 Chamberlin
phone: 262.1139
vbrar@wisc.edu



Professor Duncan Carlsmith
High Energy Physics
4285 Chamberlin
phone: 262.2485
duncan@hep.wisc.edu



Professor Dan Chung
Astro, Cosm Theory, High
Energy
5207 Chamberlin
phone: 265.3133
danielchung@wisc.edu



Professor Sue Coppersmith
Condensed Matter Theory
5334 Chamberlin
phone: 262.8358
snc@physics.wisc.edu



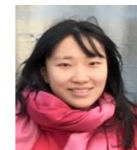
Assoc. Prof. Jan Egedal
Plasma
3275 Chamberlin
phone: 262.3628
egedal@wisc.edu



Professor Mark Eriksson
Condensed Matter
5118 Chamberlin
phone: 263.6289
maeriksson@wisc.edu



Professor Lisa Everett
Phenomenology/String Theory
5215 Chamberlin
phone: 262.4699
leverett@wisc.edu



Asst. Prof. Ke Fang
WIPAC
kfang26@wisc.edu



Professor Cary Forest
Plasma
3277 Chamberlin
phone: 263.0486
cforest@wisc.edu



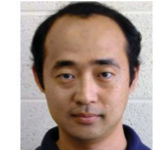
Professor Pupa Gilbert
Bio Physics
5116 Chamberlin
phone: 262.5829
pupa@physics.wisc.edu



Professor Francis Halzen
Astro Theory, IceCube
Phenomenology
5293 Chamberlin
phone: 262.2667
halzen@icecube.wisc.edu



Professor Kael Hanson
IceCube
4207 Chamberlin
phone: 262.3395
kaeld@icecube.wisc.edu



Professor Aki Hashimoto
String Theory
5209 Chamberlin
phone: 265.3244
aki@physics.wisc.edu



Professor Matt Herndon
High Energy Physics
4279 Chamberlin
phone: 262.8509
herndon@hep.wisc.edu



Professor Lev Ioffe
Condensed Matter Theory
5120 Chamberlin
phone: 890.0974
ioffe@wisc.edu



Professor Albrecht Karle
Astroparticle, IceCube
4287 Chamberlin
phone: 263.3279
karle@icecube.wisc.edu



Asst. Prof. Shimon Kolkowitz
Atomic, Molecular, Optic Physics
5279 Chamberlin
phone: 262.2865
kolkowitz@wisc.edu



Professor Jim Lawler
Atomic
1334 Chamberlin
phone: 262.2918
jlawler@wisc.edu



Assoc. Prof. Alex Levchenko
Condensed Matter Theory
5324 Chamberlin
phone: 263.4168
olevchenko@wisc.edu



Asst. Prof. Lu Lu
WIPAC
llu83@wisc.edu



Professor Dan McCammon
Astro Physics
6207 Chamberlin
phone: 262.5916
mccammon@physics.wisc.edu



Professor Robert McDermott
Condensed Matter
5112 Chamberlin
phone: 263.4476
rmdermott@wisc.edu



Asst. Prof. Moritz Cornelius Muenchmeyer
muenchmeyer@wisc.edu



Professor Marshall Onellion
Condensed Matter
5104 Chamberlin
phone: 263.6829
onellion@wisc.edu



Asst. Prof. Kim Palladino
High Energy Physics
4211 Chamberlin
phone: 263.2118
kpalladino@wisc.edu



Assoc. Prof. Yibin Pan
High Energy Physics
4283 Chamberlin
phone: 262.9569
pan@hep.wisc.edu



Asst. Prof. Jeff Parker
3205 Chamberlin
phone: 263.9348
jeff.parker@wisc.edu



Assoc. Prof. Brian Rebel
Experimental High Energy Physics
4209 Chamberlin Hall
phone: 262.3989
brebel@wisc.edu



Professor Mark Saffman
Atomic
5330 Chamberlin
phone: 265.5601
msaffman@wisc.edu



Professor John Sarff
Plasma
3289 Chamberlin
phone: 262.7742
jsarff@wisc.edu



Professor Gary Shiu
String Theory
5330 Chamberlin
phone: 265.3285
shiu@physics.wisc.edu



Professor Paul Terry
Plasma Theory
3283 Chamberlin
phone: 263.0487
pwterry@wisc.edu



Professor Peter Timbie
Astro Cosmology
6209 Chamberlin
Telephone: 890.2002
ptimbie@wisc.edu



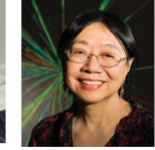
Assoc. Prof. Justin Vandenbroucke
Astro, IceCube, Neu/Nuc
4114 Chamberlin
Telephone: 265.2427
vandenbrouc@wisc.edu



Assoc. Prof. Maxim Vavilov
Condensed Matter Theory
5318 Chamberlin
phone: 262.5425
vavilov@wisc.edu



Professor Thad Walker
Atomic
5322 Chamberlin
phone: 262.4093
twalker@wisc.edu



Professor Sau Lan Wu
High Energy Physics
4225 Chamberlin
phone: 262.5878
sau.lan.wu@cern.ch

Physics Directors



Sarah Perdue
Director of Communications
2320 H Chamberlin
phone: 262.3051
saperdue@wisc.edu



James Reardon
Director of Undergrad Studies
2320 G Chamberlin
phone: 262.0945
reardon@physics.wisc.edu



Jeffrey Schmidt
Director of Graduate Studies
5219 Chamberlin
phone: 890.2004
jschmidt2@wisc.edu

We need to fill this white space
with more mug shots – preferably
with more hair and color.

People Count – we are a big group!



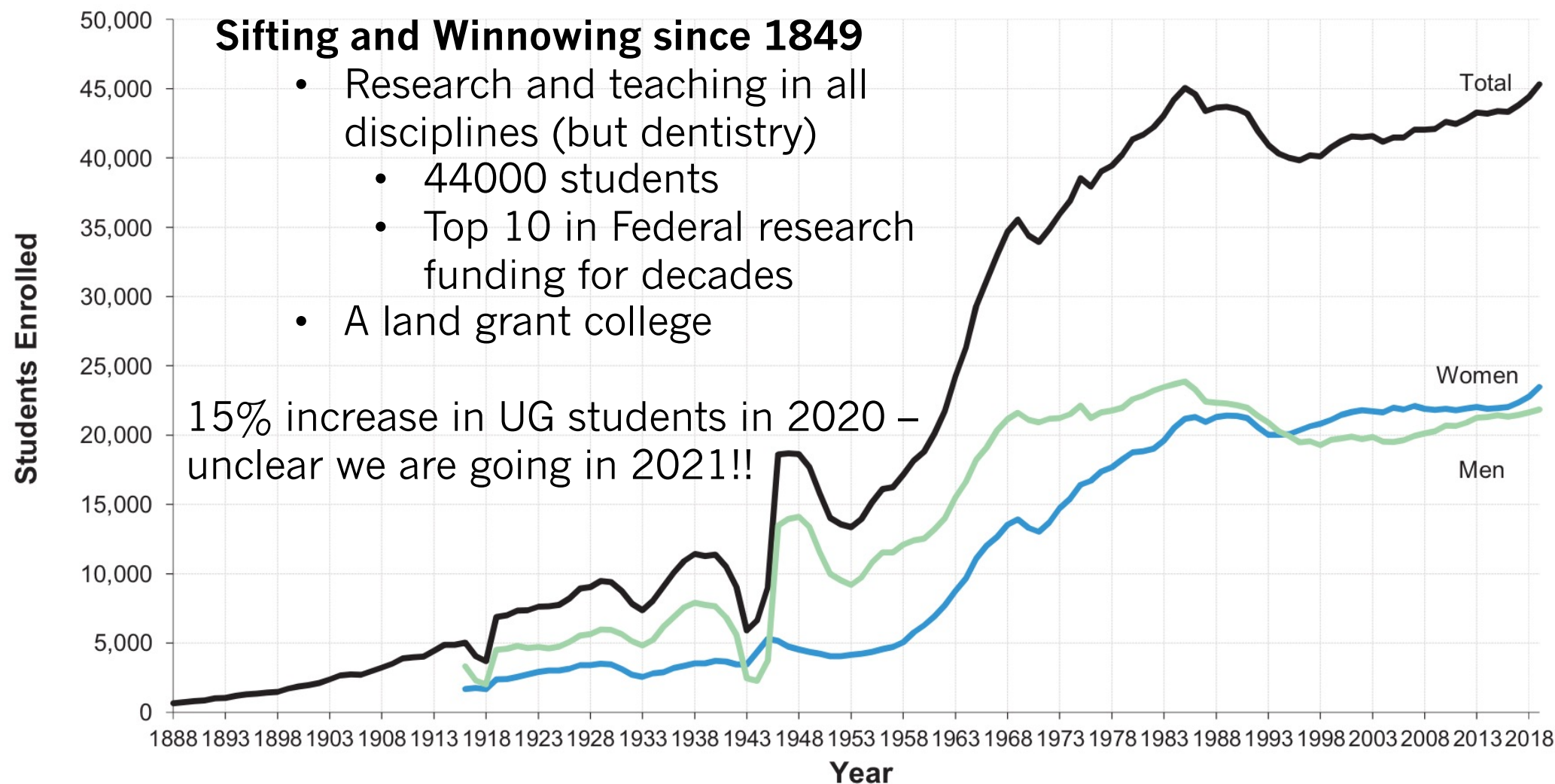
Role	Count
Undergraduate Students Served	2888
Physics Majors (Including AMEP, AP, double majors)	~208
Graduate Students	~172
Non-faculty Research Staff	~92
Faculty	49.25*
Non-faculty Teaching Staff	10
Technical Staff	13
Administrative Staff	10
Emeritus Faculty	29
Affiliated Faculty	13
Total (Excluding Service course UGs)	~3500 (~500)

**I certainly can't keep track of what 500 people are up to –
sometimes I have trouble keeping track of what I am doing myself!**

We are doing a lot of stuff!

Yet, tiny by UW-Madison Scale

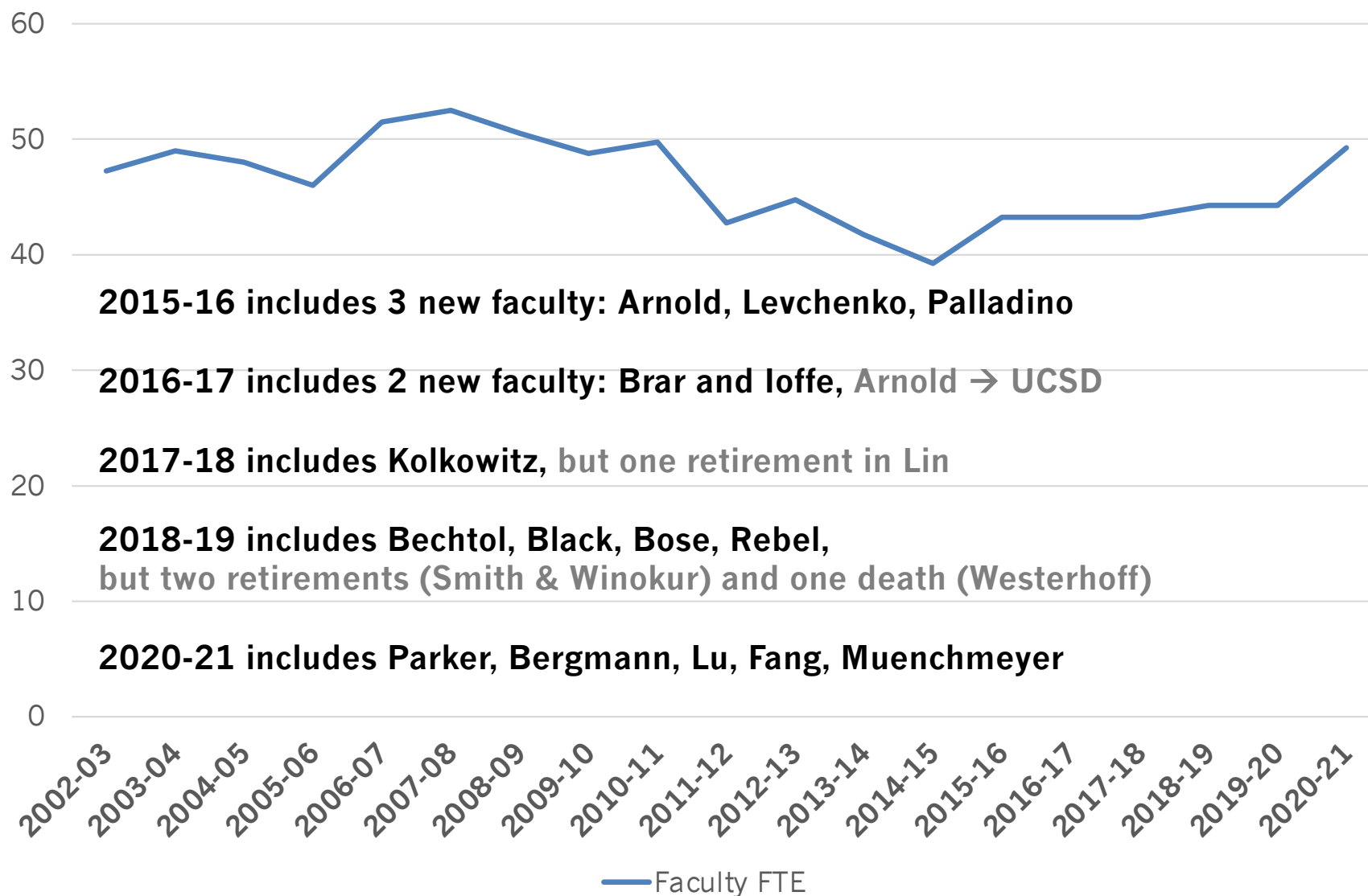
Total Enrollments from 1888 through 2019



While general UG population is diverse, physics population is far from it.

Size of Physics Faculty

Faculty FTE



Note: Coppersmith & Ioffe are on long term leave

The Strategic Planning Committee of the Physics Department met on April 16, 2019 with Baha Balantekin, Victor Brar, Dan Chung, Cary Forest, and Sridhara Dasu present. Mark Saffman could not join, but sent his input. Prior to the meeting all the members of the committee carefully read previously submitted contributions from individuals or groups describing where their field is going and how a hire in their area is good for the department. After careful deliberations the Committee listed the proposed hires in two groups. The committee did not priority order within each group, the lists given below are alphabetical.

2019-20 Searches

Hires expected for the next one or two years (not a priority ordered list):

- Computational/Theoretical Cosmology
- Computational Plasma Theory
- Condensed Matter Experiment
- Particle Astrophysics Experiment (IceCube)
- Quantum Information Theory

Martin L Perl Endowed Professorship

Multidisciplinary cluster proposal
for Quantum Computing (no hire yet ☹)

Immediate Focus 2020-21:
QIS Cluster Hire
CMP – Dunson Cheng Chair Hire

Unclear if either will be approved

Hires expected within two-to-four years (not a priority ordered list):

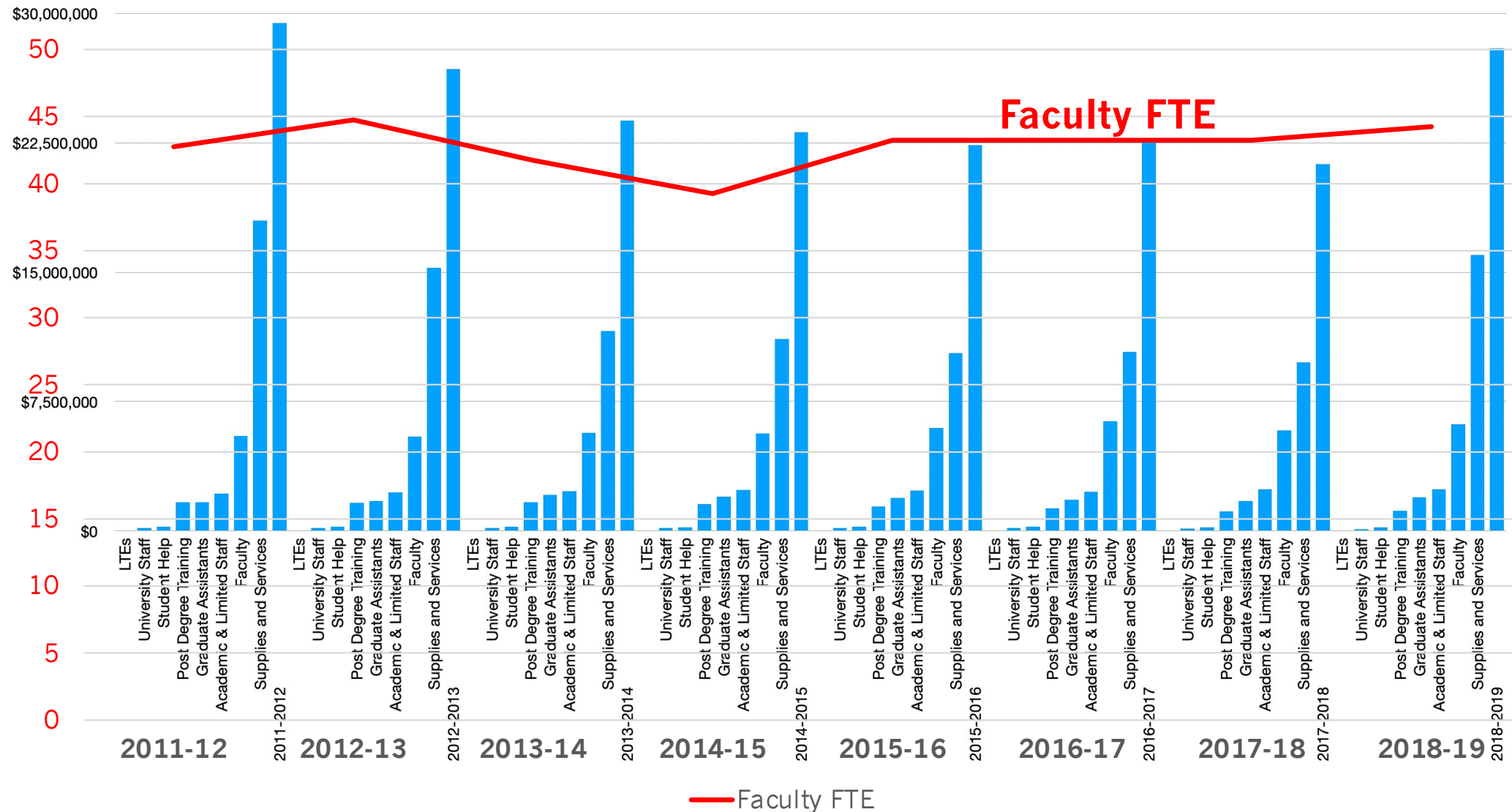
- Accelerator-based neutrino experiment
- AMO experiment
- Astrophysics experiment
- Plasma experiment

Target of Opportunity Program (TOP) :
Announced for 2020-21
Our best bet for hiring this year

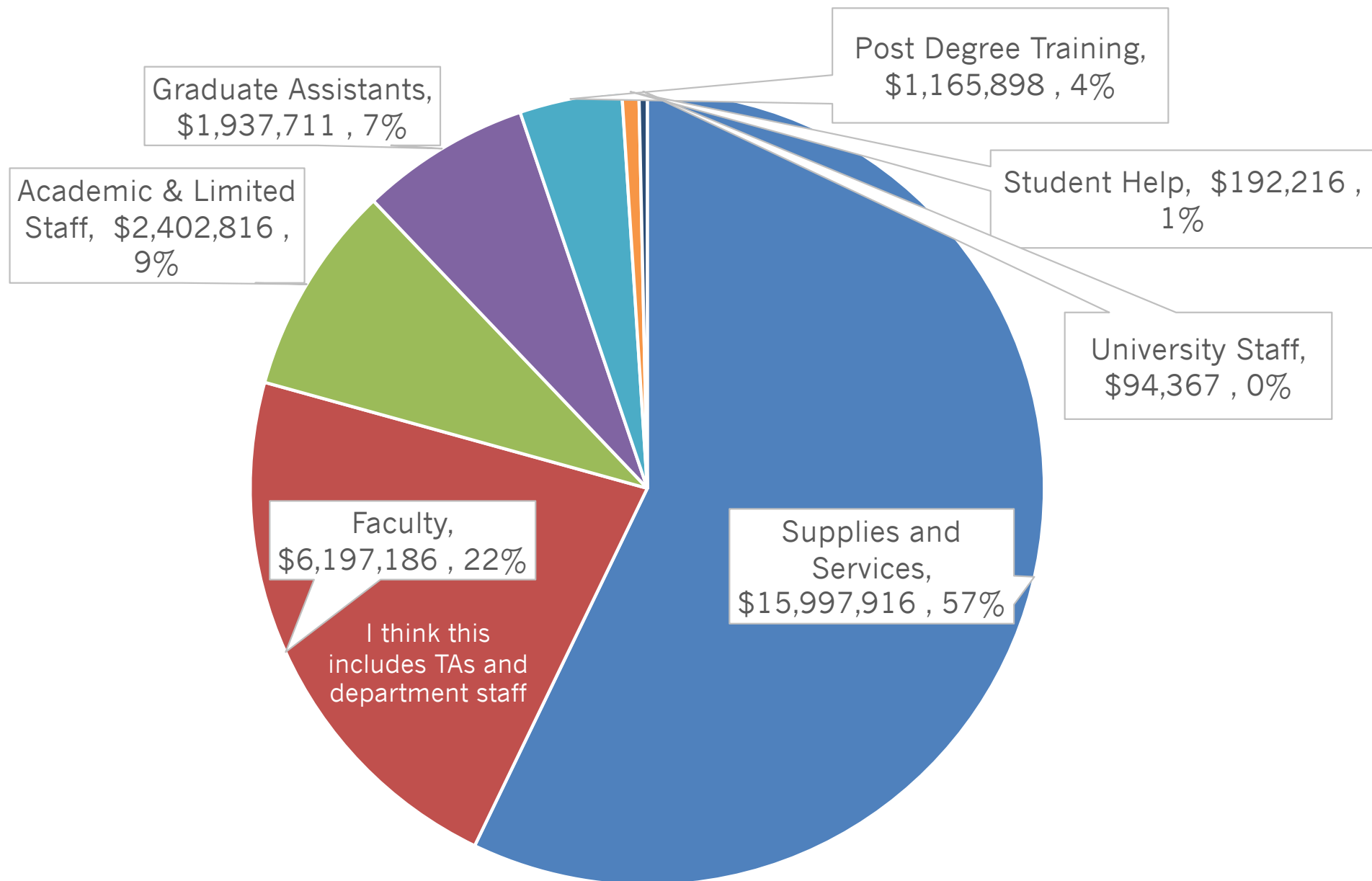
We depend on administration and instructional support

- Took advantage of a spousal hiring possibility to hire a Ph.D. researcher from Brookhaven National Laboratory
 - **Welcome Dr. Alessandro Cunsolo!**
 - He will assist in laboratory teaching and research
- **Hiring is now stopped due to COVID19**
 - **Pending PVL for Wonders of Physics Outreach**
 - Given the situation, there are no visitors permitted any way
 - **More urgent – lost Payroll & HR Person to another department**
 - We are still getting paid – thanks Aimee!
 - Additional Research Program Manager
 - Would be nice to have
 - Additional Student Services Coordinator
 - Support for MSQC and possible bridge program
 - Additional Course Coordinators for 200-level classes?
 - Large single lecture classes (academic) administrative burden

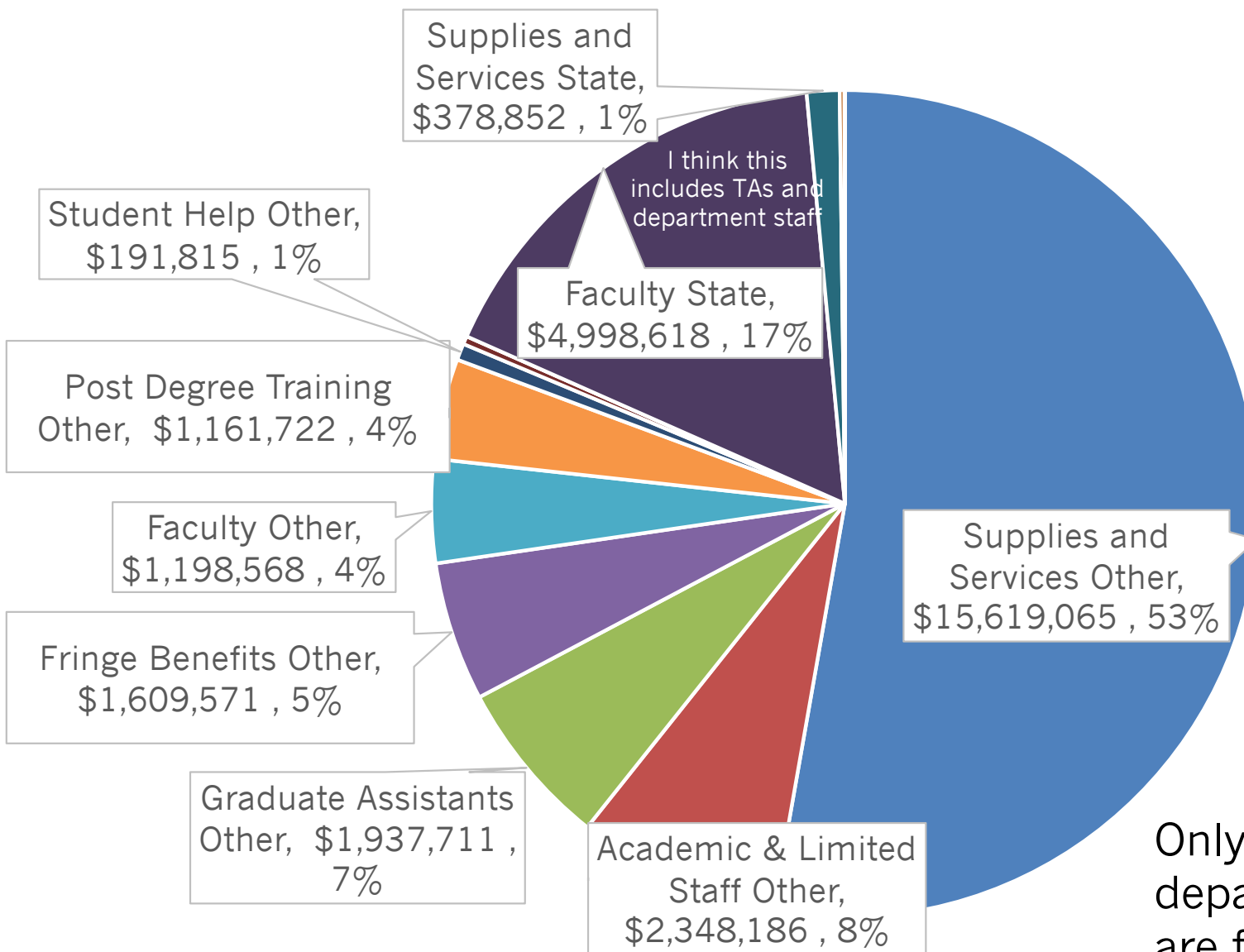
Department Expenditures



\$28M Expenditure Pie



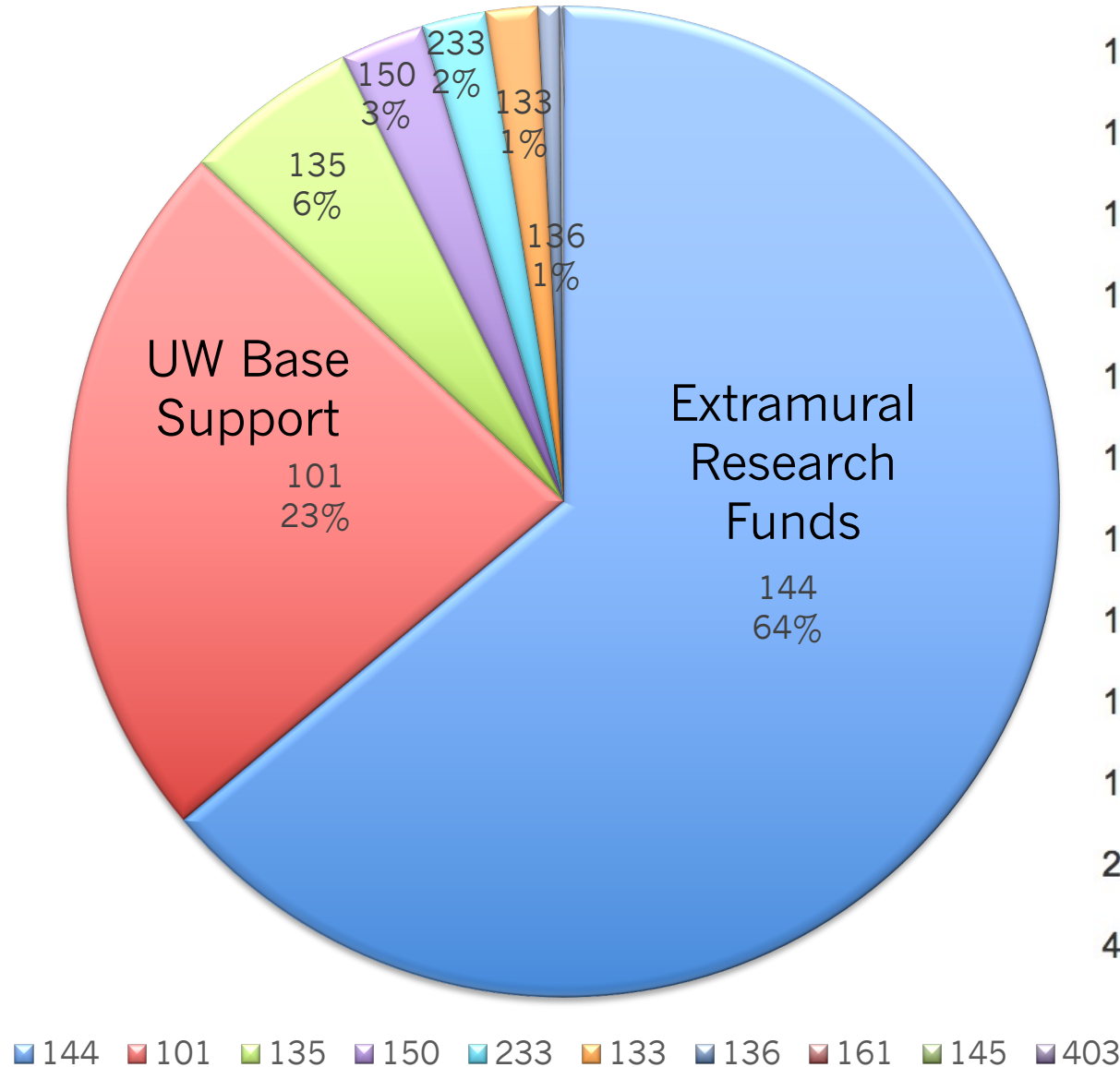
Expenditure Pie Sliced Differently



Only ~20% of the department expenditures are from the State Funds. Dominant source is the extramural faculty support.

A Slice from the Past 2016-17

Amount



FUNDING SOURCES AND ASSOCIATED

101- State tax, Federal indirect cost, and

104- Funding from UW-Extension used for

128- Cost recovery funding used by units

131- Tuition generated by self-supporting i

133- Non-Federal grants and contracts.

135- VCRGE (aka Grad School).

136- Cost recovery outreach funding mec

144- Federal grants and contract funding.

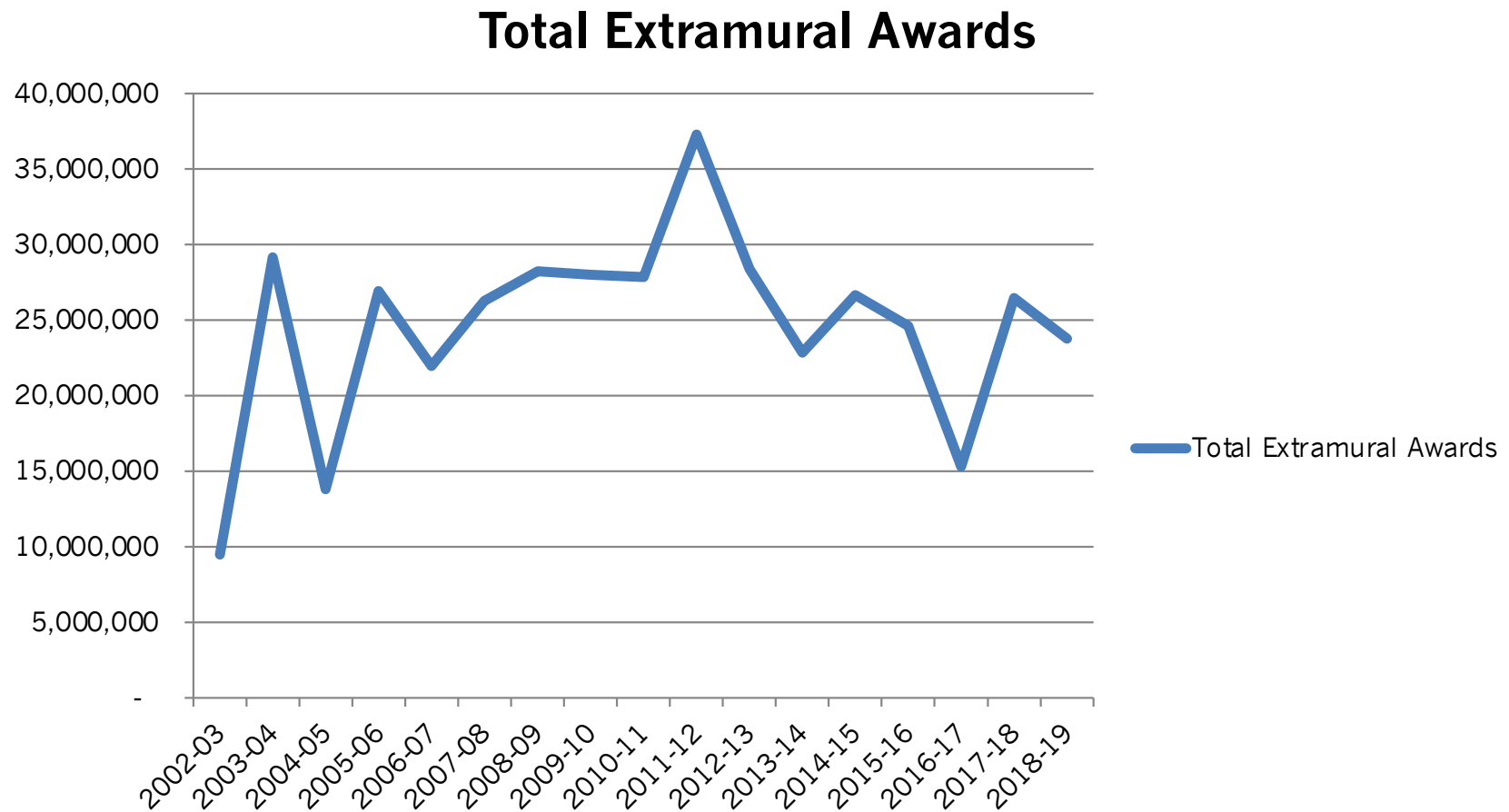
150- Federal indirect cost reimbursement

161- University administered trust funds.

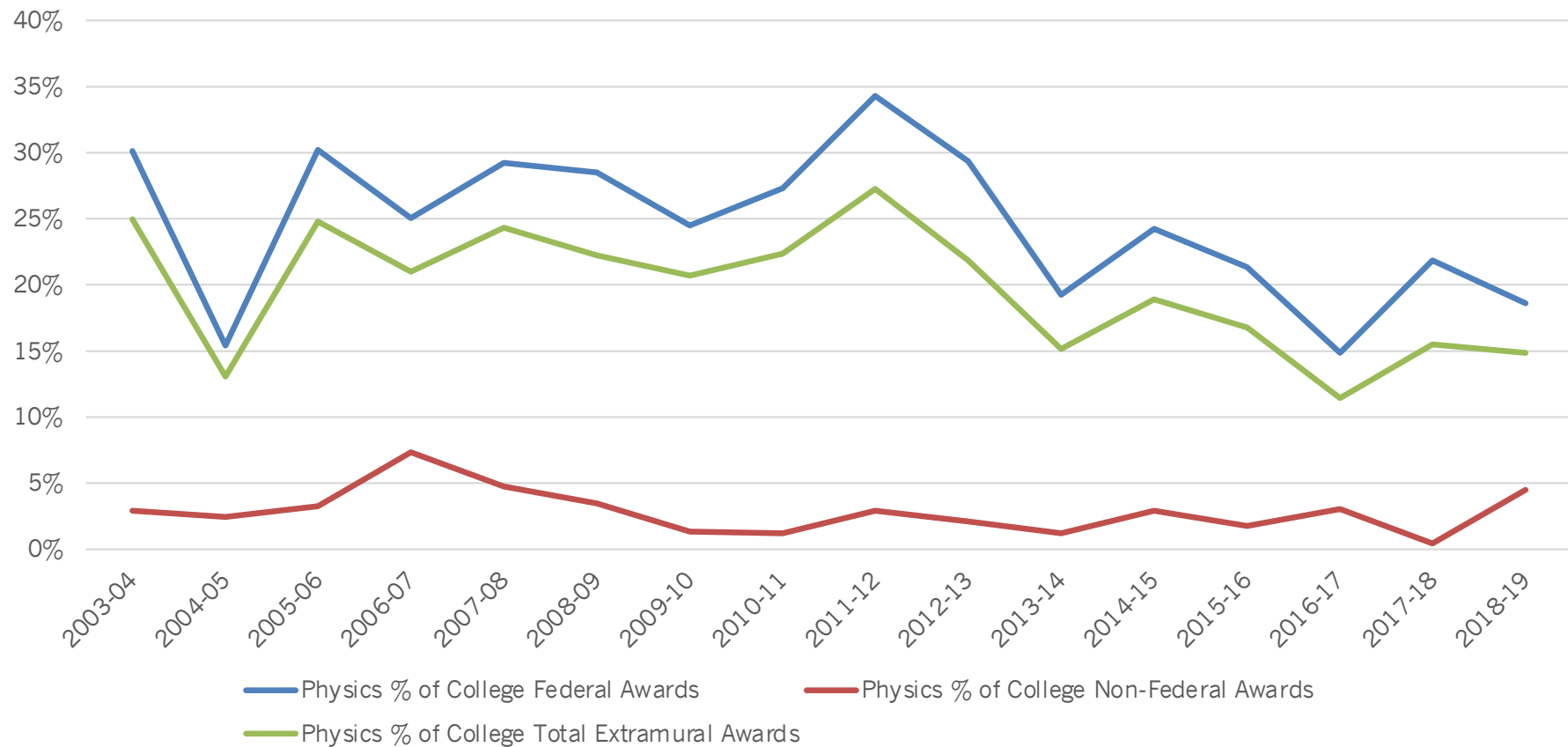
233- Gift funding.

402- Minority and disadvantaged program

80% of our effort is due to research funding

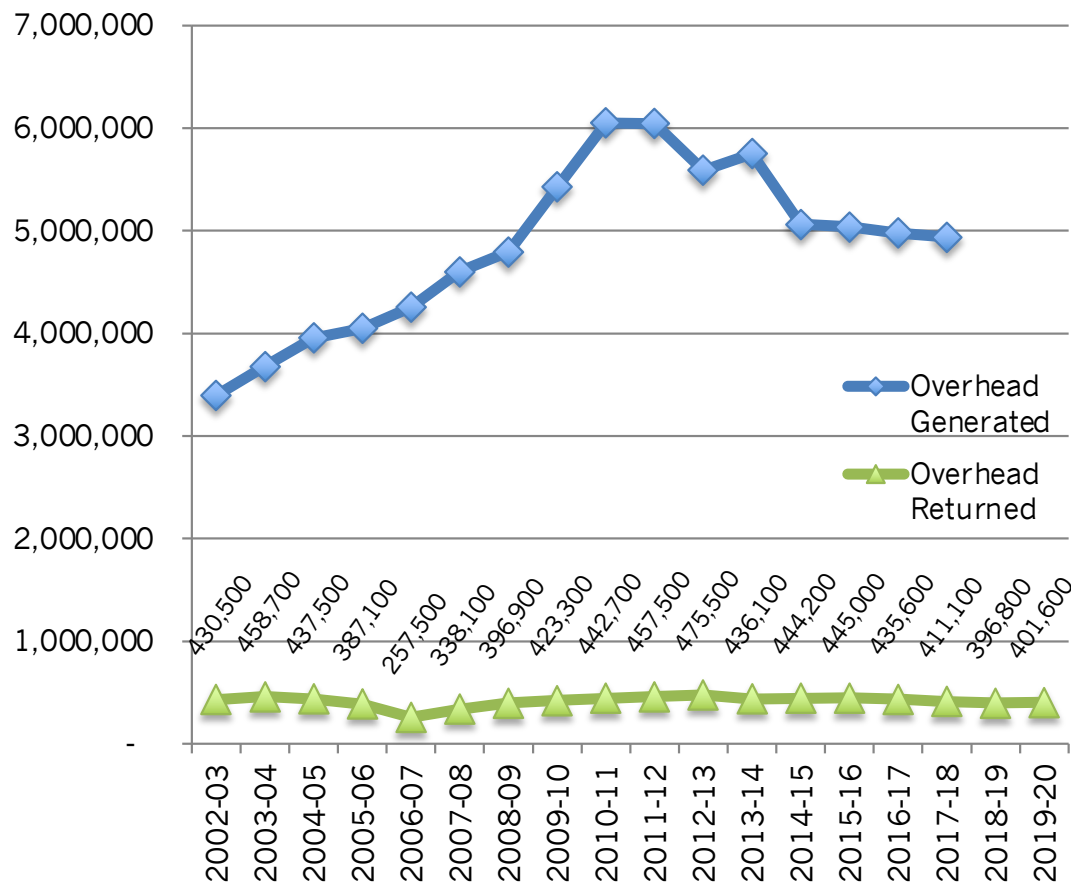


Physics % of L&S Extramural Funding



We bring in 20% of all L&S extramural support

Overhead Generated & Returned



Provides startup funds for new faculty
 We get back about 9%
 An equal amount goes to L&S
 Bulk 82% stays with central campus

	Overhead Generated	% change	Overhead Returned	% change	% of Cap Ex Return
2002-03	3,394,783		430,500		13%
2003-04	3,677,872	8%	458,700	7%	12%
2004-05	3,955,398	8%	437,500	-5%	11%
2005-06	4,048,052	2%	387,100	-12%	10%
2006-07	4,255,924	5%	257,500	-33%	6%
2007-08	4,600,000	8%	338,100	31%	7%
2008-09	4,793,653	4%	396,900	17%	8%
2009-10	5,426,889	13%	423,300	7%	8%
2010-11	6,050,710	11%	442,700	5%	7%
2011-12	6,045,691	0%	457,500	3%	8%
2012-13	5,590,154	-8%	475,500	4%	9%
2013-14	5,751,755	3%	436,100	-8%	8%
2014-15	5,062,110	-12%	444,200	2%	9%
2015-16	5,039,184	0%	445,000	0%	9%
2016-17	4,978,573	-1%	435,600	-2%	9%
2017-18	4,939,043	-1%	411,100	-6%	8%
2018-19			396,800	-3%	
2019-20			401,600		

Astro-particle / Neutrino-astrophysics (WIPAC)

- Halzen, Hanson, Karle, Vanderbroucke, **Lu, Fang**

Astrophysics & Cosmology (Cosmo)

- McCammon, Timbie, Bechtol

AMO and Quantum Computing with Neutral Atoms (AMO)

- Saffman, Walker, Yavuz, Lawler, Kolkowitz

X-Ray Physics – Material Science – Bio-materials (Bio)

- Gilbert, **Bergmann**

Condensed Matter, Quantum Computing & Nanostructure Experiment (CMP-E)

- Brar, Eriksson, McDermott, Rzchowski

Condensed Matter, Quantum Computing Theory (CMP-T)

- Coppersmith, Levchenko, Joynt, Vavilov, Ioffe

High Energy Physics Experiment (HEP-E)

- Black, Bose, Dasu, Herndon, Palladino, Rebel, Wu

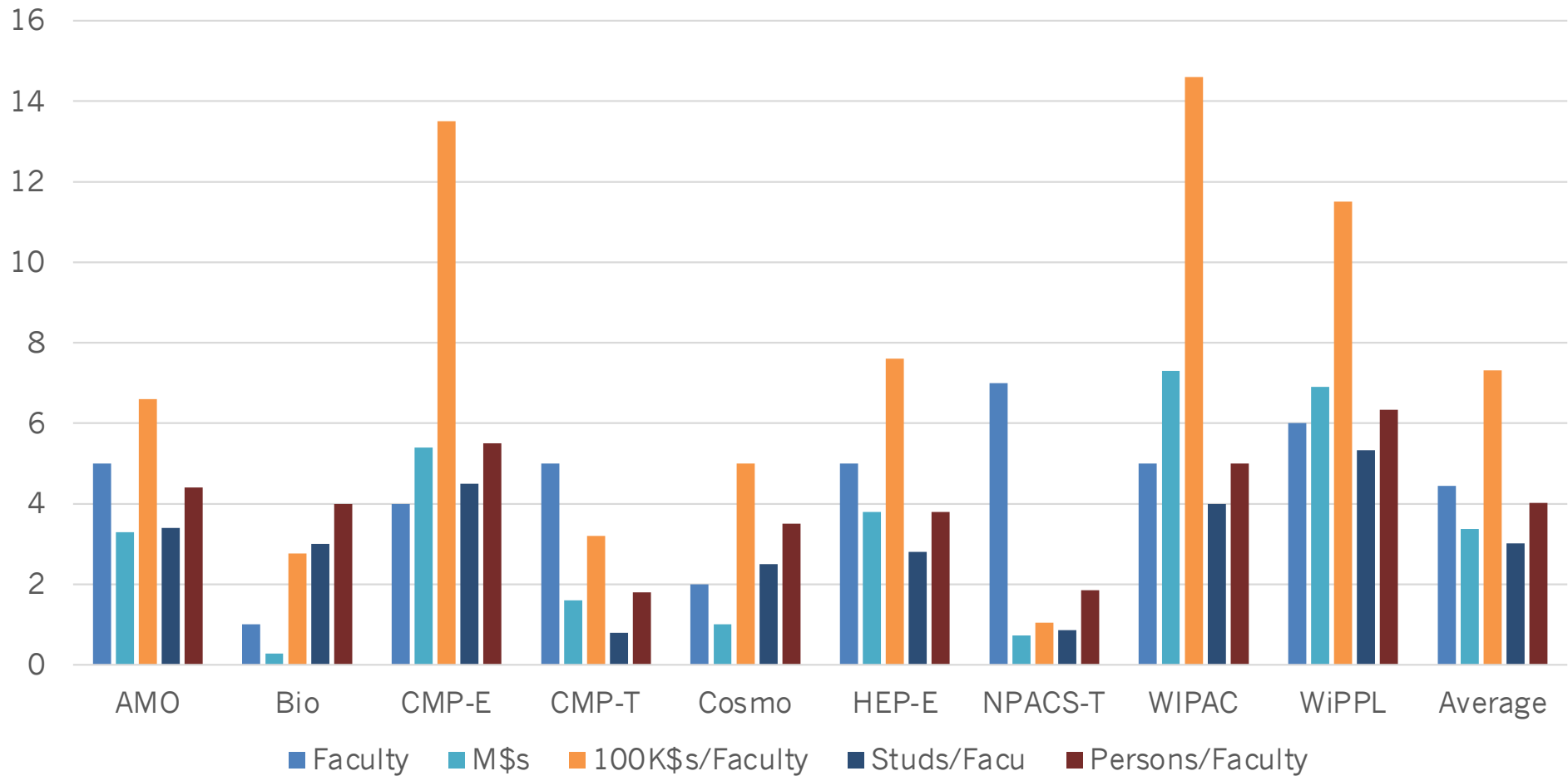
Nuclear, Particle, Astro-particle, Cosmology & String Theory (NPACS-T)

- Bai, Balantekin, Barger, Chung, Everett, Hashimoto, Shiu, **Munchmeyer**

Wisconsin Plasma Physics Laboratory, Plasma-astrophysics (WiPPL)

- Boldyrev, Egedal, Forest, Sarff, Terry, Zweibel, **Parker**

Broad groupings,
trying to put one
faculty in one group
(not perfect!)



Reasonably well balanced across various research areas

As expected, experimentalists are better funded, and support more people

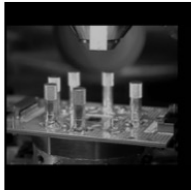
As expected, “centers” and “clusters” are better funded than remote/small groups



[Prof. Brian Rebel promoted to Senior Scientist at Fermilab](#)

Yesterday, Fermilab promoted Prof. Brian Rebel to Senior Scientist. He has a joint appointment there, and his new title at Fermilab is the closest equivalent to full professor for which scientific staff are eligible. Congrats, ...

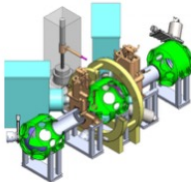
September 3, 2020



[Q-NEXT collaboration awarded National Quantum Initiative funding](#)

The University of Wisconsin–Madison solidified its standing as a leader in the field of quantum information science when the U.S. Department of Energy (DOE) and the White House announced the Q-NEXT collaboration as a funded ...

August 26, 2020



[New study expands types of physics, engineering problems that can be solved by quantum computers](#)

A well-known quantum algorithm that is useful in studying and solving problems in quantum physics can be applied to problems in classical physics, according to a new study in the journal Physical Review A from ...

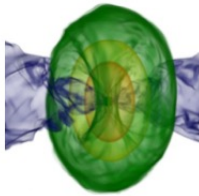
August 25, 2020



[A somber remembrance marks the 50th anniversary of the Sterling Hall bombing](#)

By Doug Erickson On an August afternoon 50 years ago, graduate student Bill Evans bumped into Robert Fassnacht, a postdoctoral researcher, in Sterling Hall at the University of Wisconsin–Madison. The two didn't know each other ...

August 24, 2020



[NSF Physics Frontier Center for neutron star modeling to include UW–Madison](#)

A group of universities, including the University of Wisconsin–Madison, has been named the newest Physics Frontier Center, the National Science Foundation announced Aug. 17. The center expands the reach and depth of existing capabilities in ...

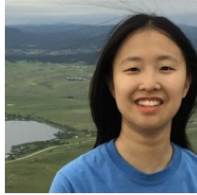
August 20, 2020



[Welcome, Assistant Professor Jeff Parker!](#)

Have you heard the joke about the lawyer who became a physics professor? Jeff Parker has, but rather than be the punchline, he was always in on the joke. After earning his Ph.D. in plasma ...

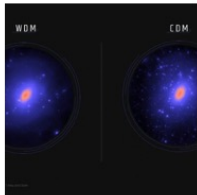
August 19, 2020



[First-year physics grad student uses her disrupted summer – and her science training – to research N95 safety](#)

Shortly after incoming physics graduate student Winnie Wang attended a UW–Madison campus visit weekend in February, her plans took an abrupt change due to COVID-19. The University of Massachusetts, where she was studying, closed right ...

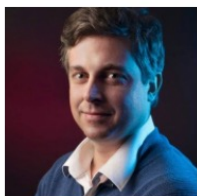
August 14, 2020



[Dark Energy Survey census of the smallest galaxies hones the search for dark matter](#)

This story is adapted from one originally published by Fermilab Today, scientists in the Dark Energy Survey — including UW–Madison assistant professor of physics Keith Bechtol and his research group — released results that have ...

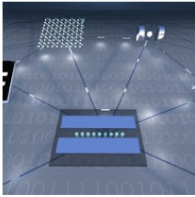
August 4, 2020



[Kevin Black named co-coordinator of LHC Physics Center at Fermilab](#)

Professor Kevin Black has been named one of the next co-coordinators of the LHC (Large Hadron Collider) Physics Center at Fermilab (LPC at FNAL), LPC announced recently. His initial appointment starts on September 1st, 2020 ...

August 3, 2020



[UW-Madison named member of new \\$25 million Midwest quantum science institute](#)

As joint members of a Midwest quantum science collaboration, the University of Wisconsin-Madison, the University of Illinois at Urbana-Champaign and the University of Chicago have been named partners in a National Science Foundation Quantum Leap ...

July 21, 2020



[Chicago Quantum Exchange, including UW-Madison, welcomes seven new partners in tech, computing and finance, to advance research and training](#)

The Chicago Quantum Exchange, a growing intellectual hub for the research and development of quantum technology, has added to its community seven new corporate partners in computing, technology and finance that are working to bring about ...

July 7, 2020



[Particle collider experiment CMS – and UW physicists who contribute – celebrate 1000th publication](#)

In June 2020, The Compact Muon Solenoid (CMS) collaboration announced the submission of its 1000th scientific publication since the experiment began a decade ago. With multiple University of Wisconsin-Madison physics faculty involved in CMS over ...

June 30, 2020

Mark Eriksson earns WARF named professorship **Tuesday, May 12, 2020**

Mark Eriksson has been named the John Bardeen Professor of Physics, through the Wisconsin Alumni Research Foundation (WARF) named professorship program.

The **WARF named professorship program** provides recognition for distinguished research contributions of the UW–Madison faculty. The awards are intended to honor those faculty who have made major contributions to the advancement of knowledge, primarily through their research endeavors, but also as a result of their teaching and service activities.



Three physics professors awarded UW2020 funding **Thursday, May 7, 2020**

Twelve projects have been chosen for Round 6 of the UW2020: WARF Discovery Initiative, including three from faculty in the Department of Physics (Mark Eriksson, Robert McDermott, and Justin Vandembroucke). These projects were among 92 proposals submitted from across campus. The initiative is funded by the Office of the Vice Chancellor for Research and Graduate Education and the Wisconsin Alumni Research Foundation.

The projects were reviewed by faculty across the university. The UW2020 Council, a group of 17 faculty from all divisions of the university, evaluated the merits of each project based on the reviews and their potential for making significant contributions to their field of study.

The goal of UW2020 is to stimulate and support cutting-edge, highly innovative and groundbreaking research at UW–Madison and to support acquisition of shared instruments or equipment that will foster significant advances in research.



Saffman group part of team awarded \$7.4M grant to apply quantum computers to real-world problems Monday, April 20, 2020

Wisconsin Quantum Institute director and professor of physics Mark Saffman and his research group are part of a team that will attempt to make quantum computing hardware more applicable to real-world problems.

The up to \$7.4 million Defense Advanced Research Projects Agency (DARPA) funding is through the ONISQ program — Optimization with Noisy Intermediate-Scale Quantum devices. ColdQuanta is the primary recipient of the funding, and **Saffman's group** at the University of Wisconsin–Madison, along with a national lab and other universities, are partners.

“We’re in this era of development of quantum computing hardware that has been termed NISQ, and that’s because we don’t have error correction running on our quantum hardware,” says Saffman, who is also a UW–Madison professor of physics and chief scientist for quantum information at ColdQuanta. “The question is, can we do anything useful with this? Because the outlook for having a real error-corrected quantum computer that you could run very long calculations still seems to be a long way away, but we have these NISQ machines today, and they’re getting better all the time.”

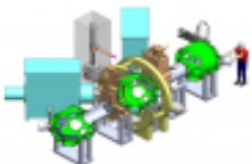


Physicists to improve plasma fusion mirror devices with \$5 million grant Monday, April 13, 2020

University of Wisconsin–Madison plasma physicists will harness the power of high-temperature superconducting magnets to design and build a more efficient plasma fusion device, thanks to a two-year, \$5 million **U.S. Department of Energy grant** awarded April 7.

The team, led by physics Professor **Cary Forest**, has been conducting fusion research for over two decades and expects this new device — the Wisconsin HTS Axisymmetric Mirror (WHAM) — will serve as a prototype for the next generation of fusion reactors.

“Neutrons generated from fusion are useful for many things, from making medical isotopes to potentially being a power source in the future,” Forest says. “Our idea initially — and this was **funded by a UW2020 grant** — was to build a neutron source which could go several orders of magnitude beyond current medical isotope production efficiencies but also provide a key first step in the direction of advancing fusion energy.”



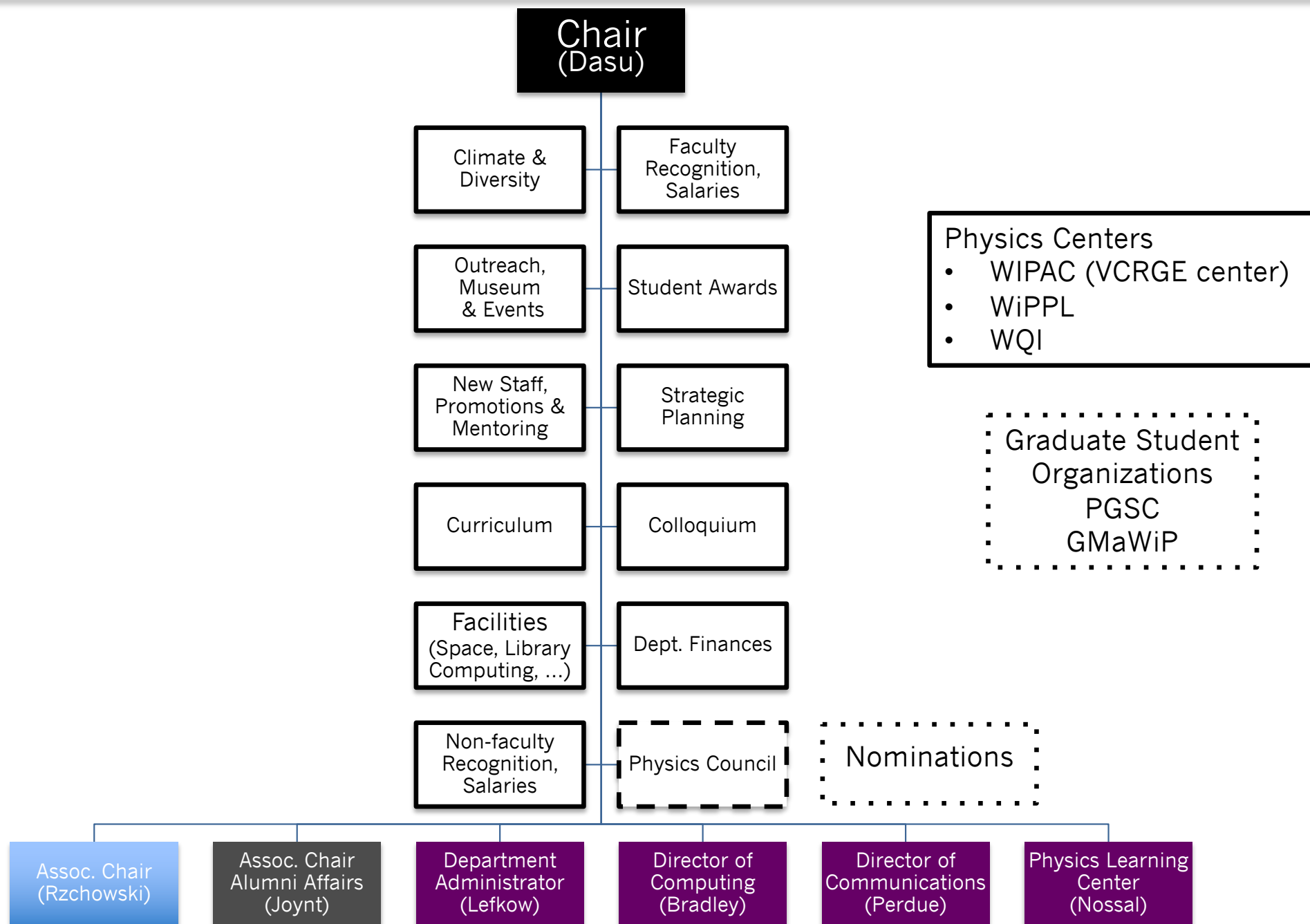
Facilities Issue

Chamberlin & Sterling lab space crunch

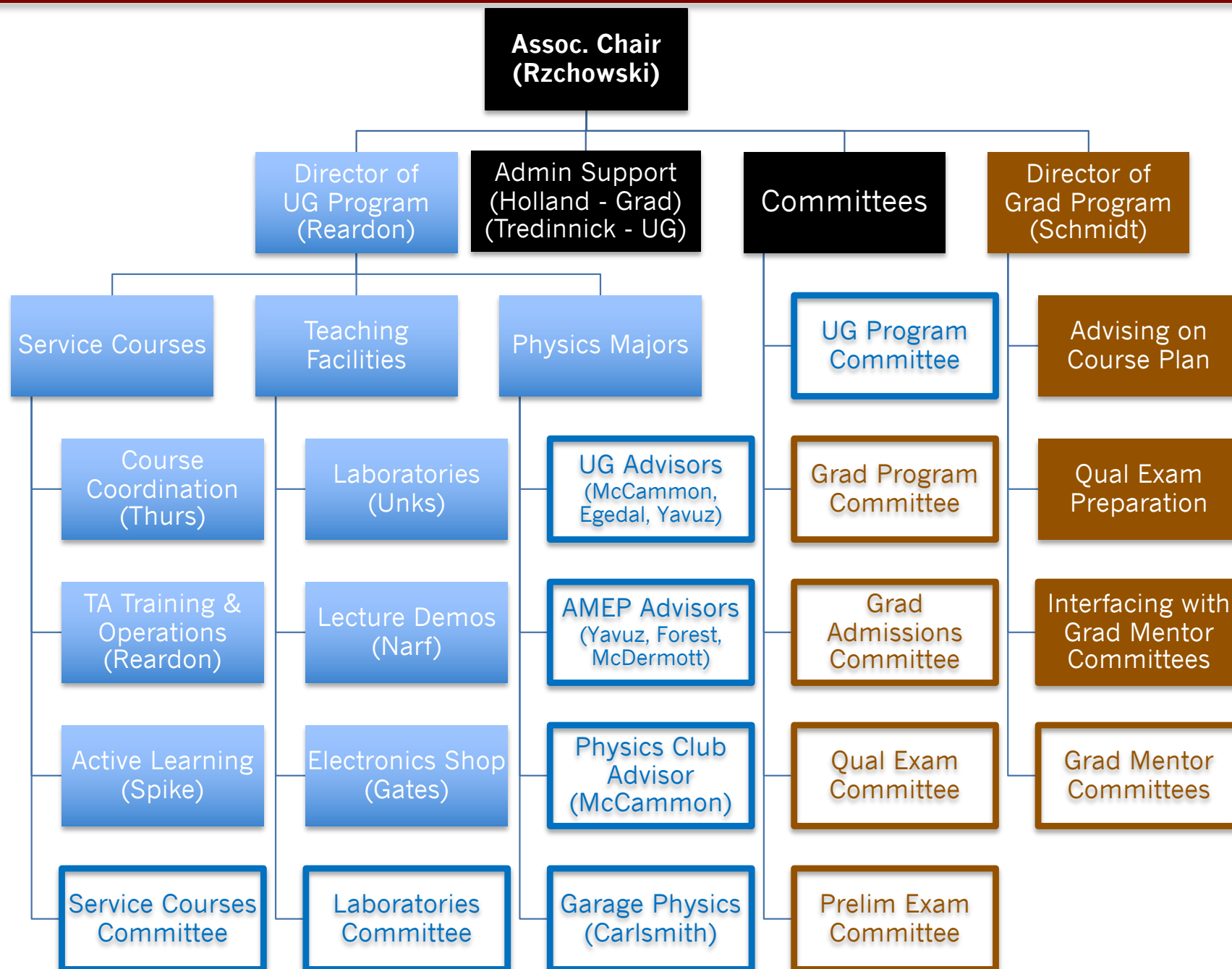
- Not enough space to house potential opportunities in QIS
- Not enough space to bring back WIPAC to main campus
- Not enough space to mount new Plasma experiments
 - WHAM – Cary Forest's new experiment is headed to PSL

Sterling basement remodeling

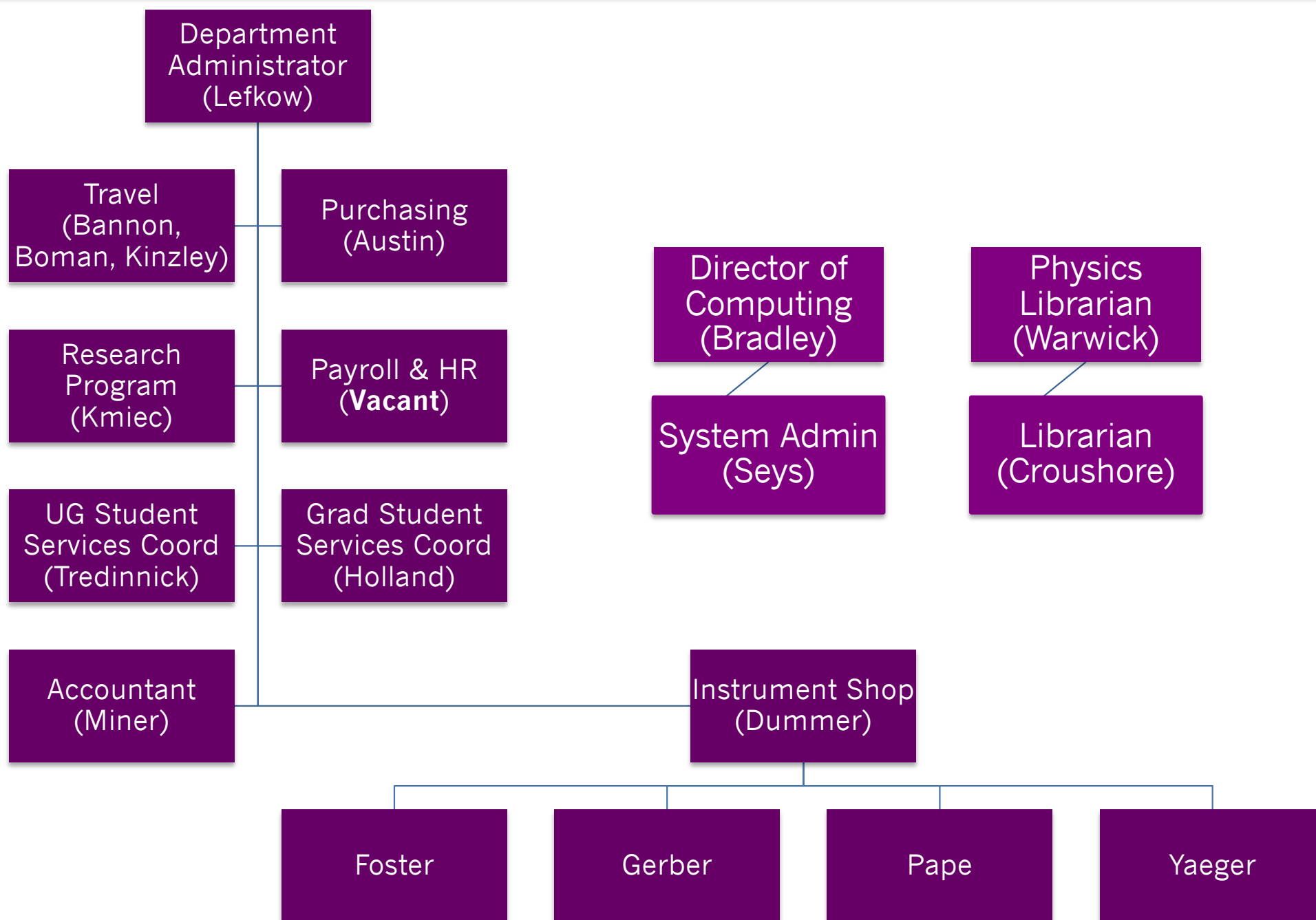
- Prohibitive multi-million cost to decommission, cleanup and rebuild laboratory space in the Tandem vault
 - L&S shelved the plan temporarily even before COVID woes
- Quantum Information opportunity
 - Possible new facility across from WID in early discussion phase
 - Campus welcomes building gift funds – mostly out of our reach presently

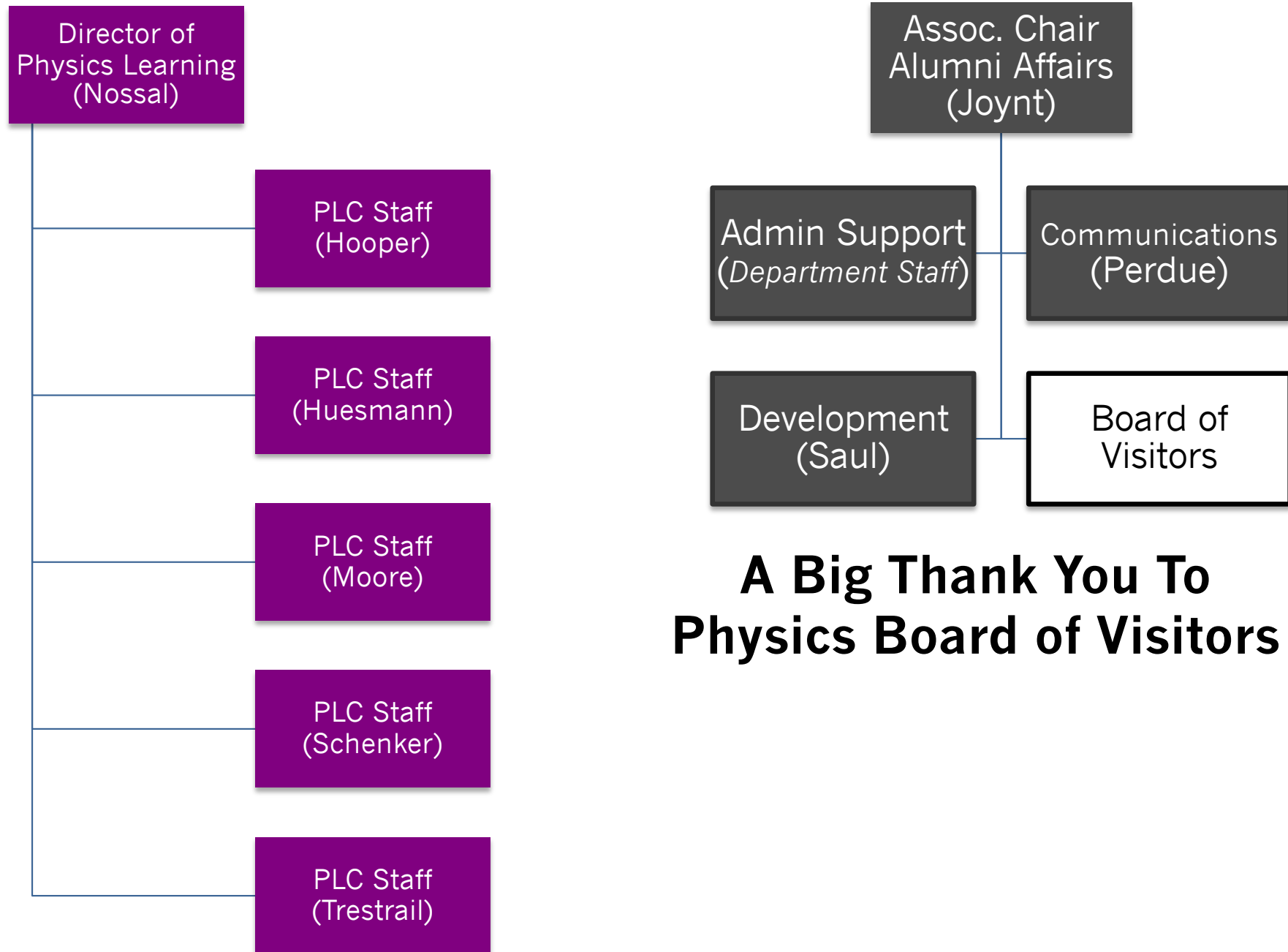


Physics Teaching Organization



Physics Administration & Services





**A Big Thank You To
Physics Board of Visitors**

Help Advance UW-Physics to Top 15 Programs Nationally

- **Determine and Improve Factors used in Ranking**
E.G .Research Funding, Faculty Size, Publication Quality,
Peer Evaluation
Alumni: Engagement, Quality, Success, Networking
- **Build on Strengths and Identify New Opportunities**

Strengthen Board of Visitors Assistance/Engagement in

- **Career Recruitment and Placement of Students**
Scholarships, Networking
- **Identifying New Opportunities for Research and Education**
Explore “**Applied Physics**” research and education opportunities
valued by Industry
- **Focused Efforts**
Now: Bernice Durand Professorship Fund
Consider: Increase alumni participation in fund raising / contributing

Intra Departmental Funding Opportunity

“The purpose of this discretionary fund is to promote excellence in all areas of the UW physics department: research, teaching, and outreach. Awards will be decided via a yearly review of proposals from faculty and academic staff of the department.”

Reviewed by **Alumni and Board of Visitors Committee**

2019-2020 Winners (\$30K each):

**Prof. Yang Bai, Prof. Dan Chung,
Prof. Alex Levchenko, Prof. Deniz Yavuz**

2020-2021 Opportunity:

Send 2-page proposals to Bob Joynt by Oct 15, 2020

ANNUAL SHOWS

Scheduled presentations of **The Wonders of Physics** and a [Physics Fair](#) are given on the UW-Madison campus for the general public in mid-February each year. Free tickets are recommended and are available after January 1st using the [On-Line Ticket Form](#). Alternately, you may call (608) 262-2927 or e-mail wonders@physics.wisc.edu. The next public presentations of **The Wonders of Physics** are scheduled as follows:

Saturday February 13, 2021 1, 4, and 7 pm

Sunday February 14, 2021 1 and 4 pm

Saturday February 20, 2021 1, 4, and 7 pm

Sunday February 21, 2021 1 and 4 pm

These presentations will be held in 2103 Chamberlin Hall, [1150 University Avenue, Madison, WI](#). The presentations last a bit over an hour and are suitable for all ages.

"Never has there been a time when an understanding of science has been more important to the well-being of individuals and to the nation than the present"

—CLINT SPROTT - FOUNDER, PROFESSOR EMERITUS



[VIEW PHOTOS FROM THE 2020 SHOW HERE](#)



[VIEW THE VIDEO OF THE 2020 SHOW HERE](#)

NOTICE:

UW-Madison COVID-19 Update: Campus Visit Program has cancelled ALL tours until further notice. Therefore the Physics Ingersoll Museum will remain closed until we are allowed to reopen.



The Leonard R. Ingersoll Physics Museum was conceived by Professor Snow and Professor Ingersoll in 1917 and was fully established in 1918 when the construction of Sterling Hall was completed. The establishment of this museum, known at the time as the Historical museum, made it one of the first museums of its kind in the country that focused on physics. Following Professor Ingersoll's death in 1958,



WISCONSIN

UNIVERSITY OF WISCONSIN-MADISON