

Welcome to Fermilab Theory Division (ThD/THD)

Patrick (PaDDy) Fox, (Interim) Head of the Division

Outline

- What science we work on
- How we are structured
- The culture and expected behaviour
- People who are here
- Newcomers (*prepare for a 20 second bio*)
- Typical week at THD
- Tea and biscuits (aka coffee and cookies)

Fermilab at a Glance

- America's particle physics and accelerator laboratory
- Operates the largest US particle accelerator complex
- ~2,100 staff and ~\$750M/year budget
- 6,800 acres of federal land
- Facilities used by 4,000 scientists from >50 countries

As we move into the next 50 years, our vision remains to solve the mysteries of matter, energy, space, and time for the benefit of all.



Our Science



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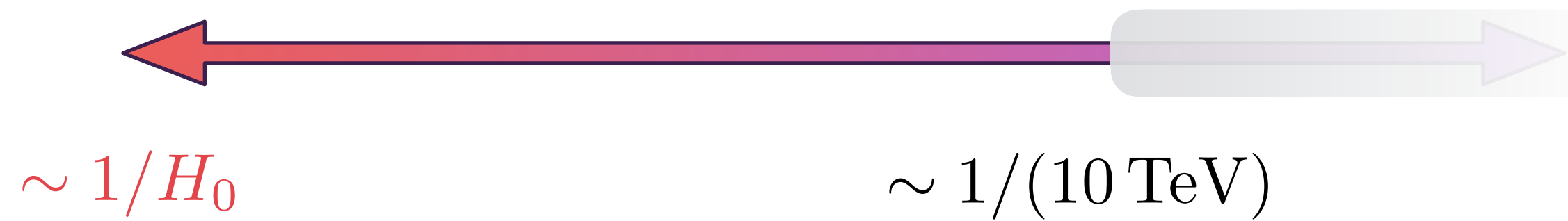
$\sim 1/M_{GUT}$



Our Science



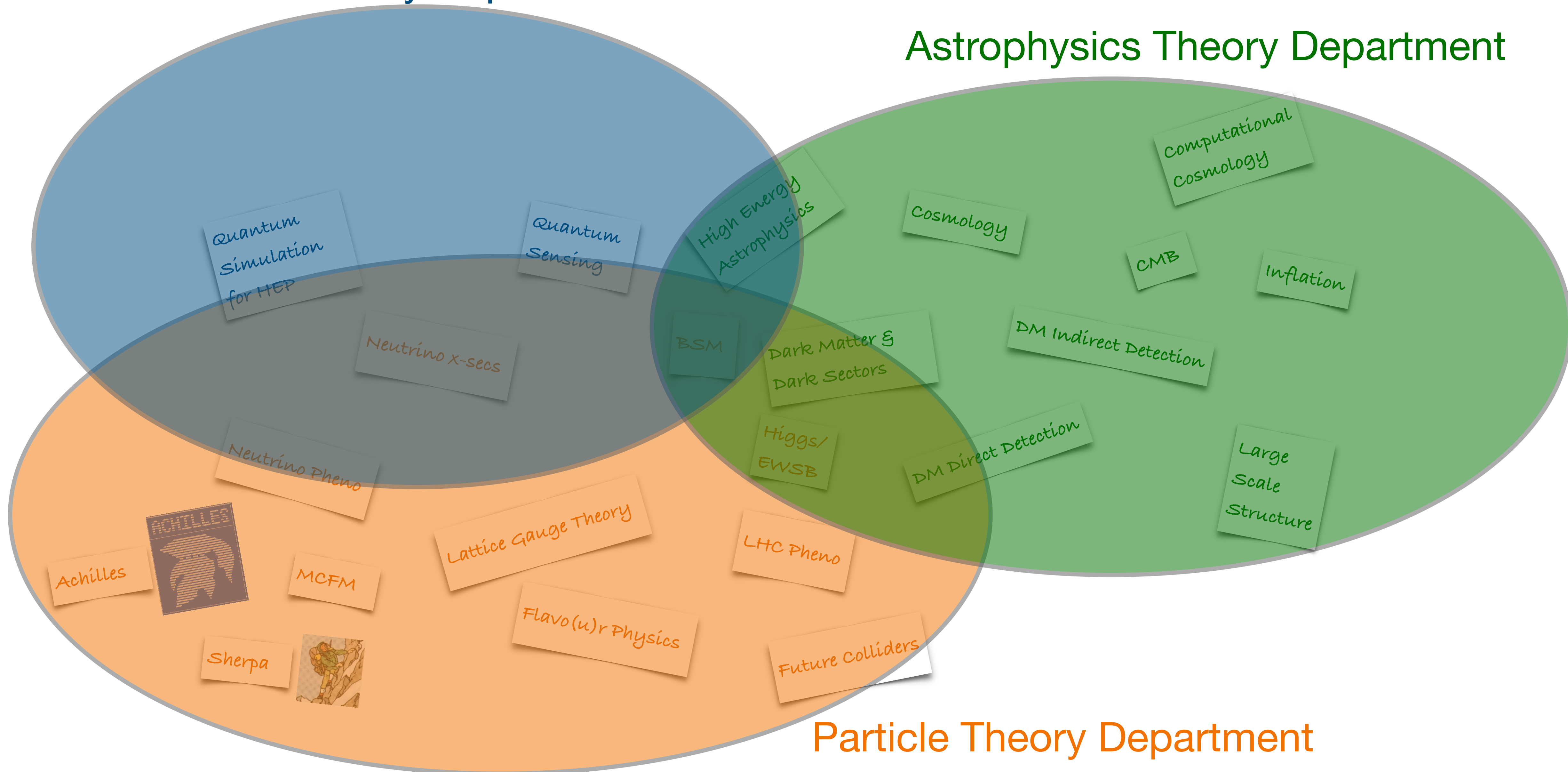
Our Science



Our Science

Quantum Theory Department

Astrophysics Theory Department



Particle Theory Department

Our Science

You are encouraged to work on any and all of these topics, as well as anything else you find interesting.

Talk to each other, talk to staff, find out what is going on in the lab

Take advantage of everything THD and FNAL have to offer

“Be well and do good work”

Code of Conduct and Community Standards [\[link\]](#)

Pushing science forward requires critical thinking, productive criticism requires mutual trust

We must always treat one another with decency and respect

Value others and their point of view, including those who don't easily find their voice

Be open to corrections and suggestions

Recognize skills and expertise of others in the FNAL community

Share credit

Be courteous

Welcome new ideas

Being part of THD is a privilege and a responsibility

Harassment and discrimination is not acceptable

Our Structure

October 1, 2024

1 Division, 3 Departments

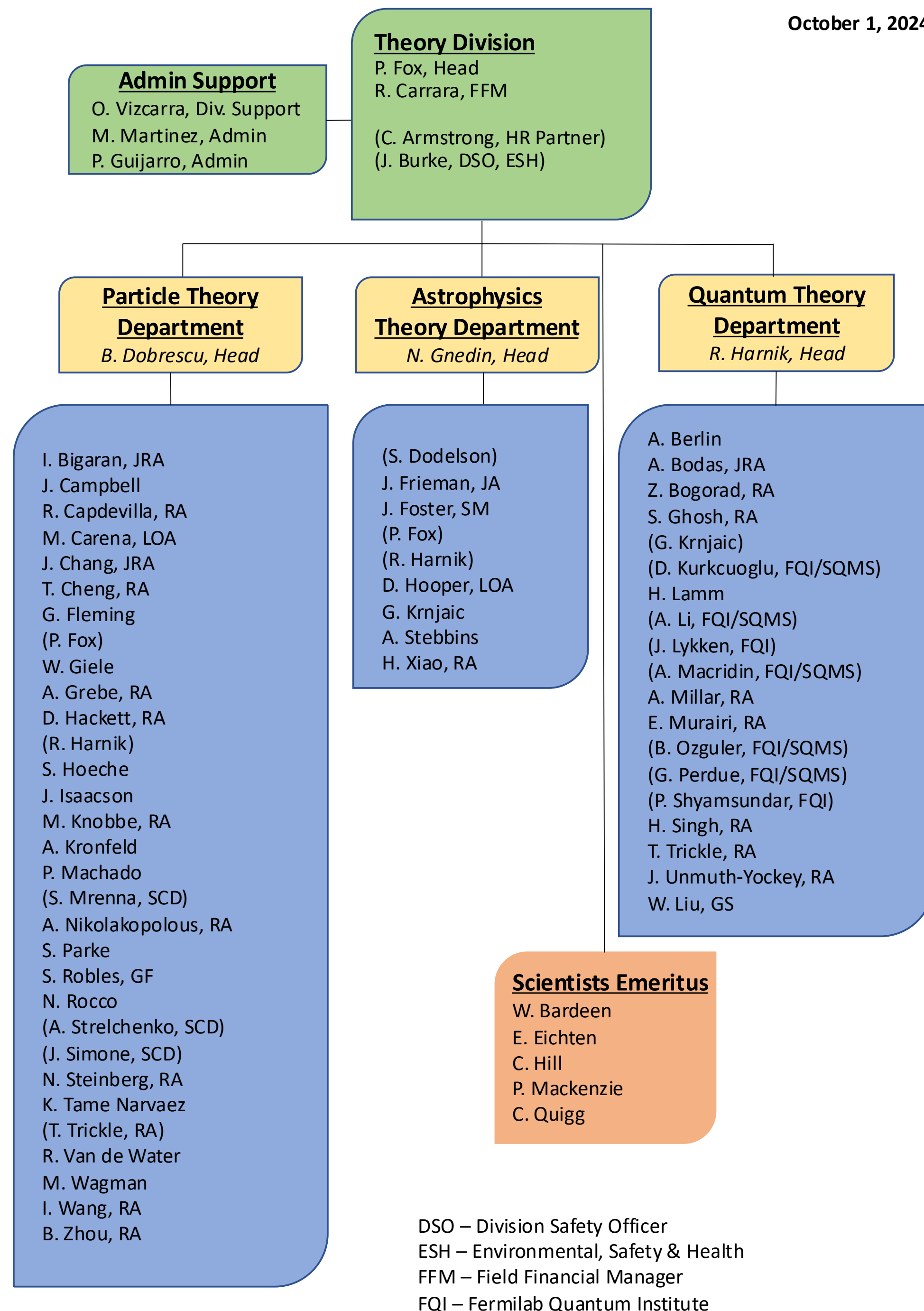
Postdocs nominally in 1 department, for administrative reasons—work on any science you want!

Each PD also assigned a mentor who will check in with you periodically.

Feel free to come talk to any of us



I am “most receptive” to admin/bureaucratic issues
Mon, Wed (am), Fri



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Mentee (Postdoc) ▼	Mentor ▼
Dan Hackett	John Campbell
Zachary Bogorad	Bogdan Dobrescu
Rodolfo Capdevilla	George Fleming
Alex Millar	Paddy Fox
Isaac Wang	Walter Giele
Huangyu Xiao	Stefan Hoeche
Innes Bigaran	Andreas Kronfeld
Edison Murairi	Pedro Machado
Max Knobbe	Stephen Parke
Anthony Grebe	Noemi Rocco
Peter Vander Griend	Ruth Van de Water
Judah Unmuth-Yockey	Mike Wagman
Arushi Bodas	George Fleming
Jae Chang	Ruth Van de Water
Sohitri Ghosh	Mike Wagman
Tanner Trickle	Nick Gnedin
Sandra Robles	Gordan Krnjaic
Alexis Nikolakopoulos	Roni Harnik
Karla Tame Narvaez	Albert Stebbins
Josh Foster	Gordan Krnjaic
Ting Cheng	Asher Berlin
Bei Zhou	Hank Lamm
Noah Steinberg	Roni Harnik

B. Zhou, RA

DSO – Division Safety Officer
ESH – Environmental, Safety & Health
FFM – Field Financial Manager
FQI – Fermilab Quantum Institute

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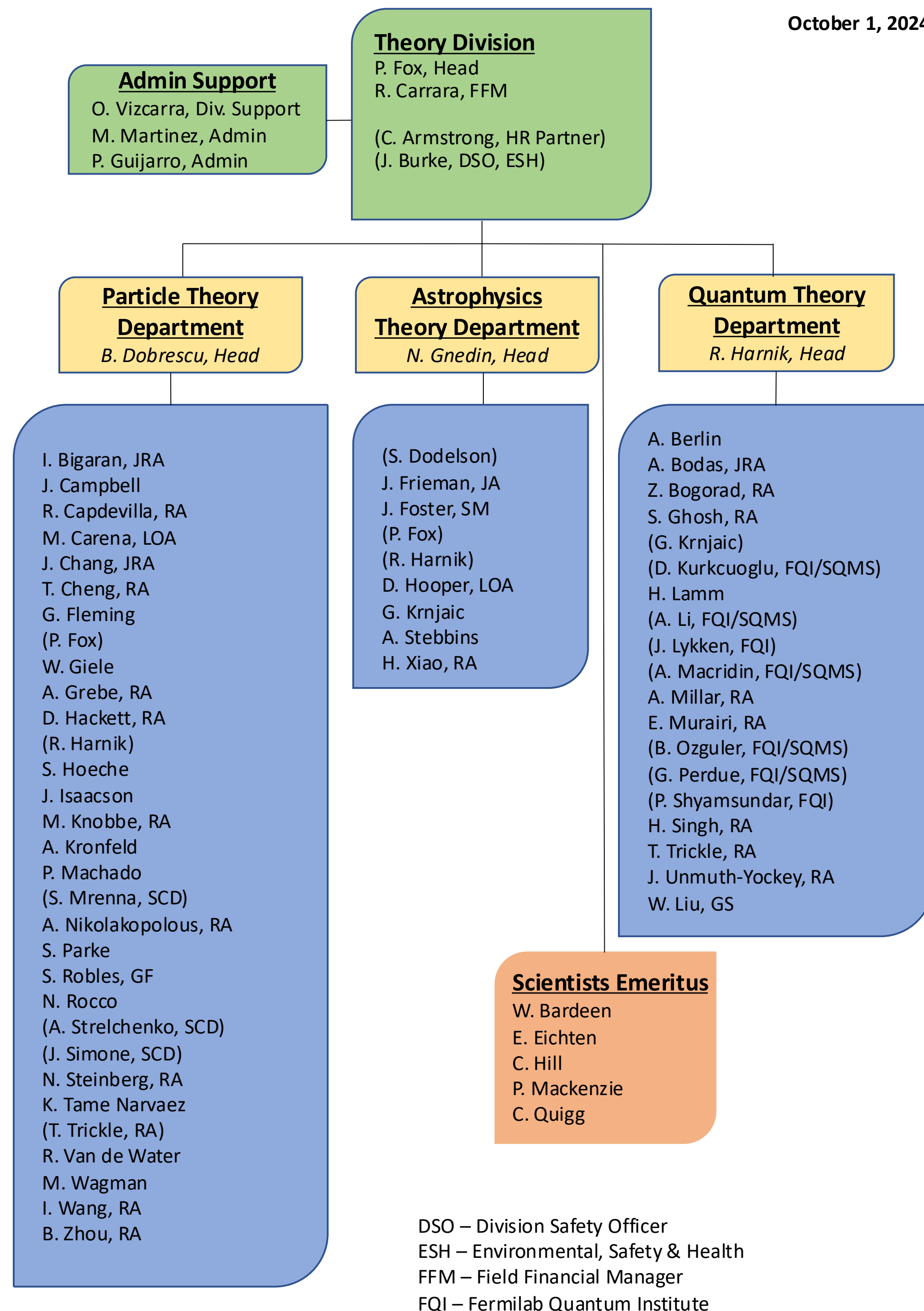
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Olivia, Monica, Patty (OMP)

Fermilab is not only on the frontiers of science but also the frontiers of bureaucracy.

Admin Support

O. Vizcarra, Div. Support
M. Martinez, Admin
P. Guijarro, Admin



Travel, reimbursements, questions about how FNAL works, etc

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“It’s as easy as ABC, 123...if you’ve got a question ask OMP”

(With apologies to the Jackson 5)

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“When they say jump, you say how high”

(With apologies to Rage Against the Machine)

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Travel

Travel: need to get paperwork done **40 days** before the travel date.

See OMP early and often

DON'T BOOK YOUR OWN FLIGHTS ETC WHEN ON FERMILAB TRAVEL

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(With apologies to Rage Against the Machine)

Existing members (Astro)



Nick Gnedin, HOD



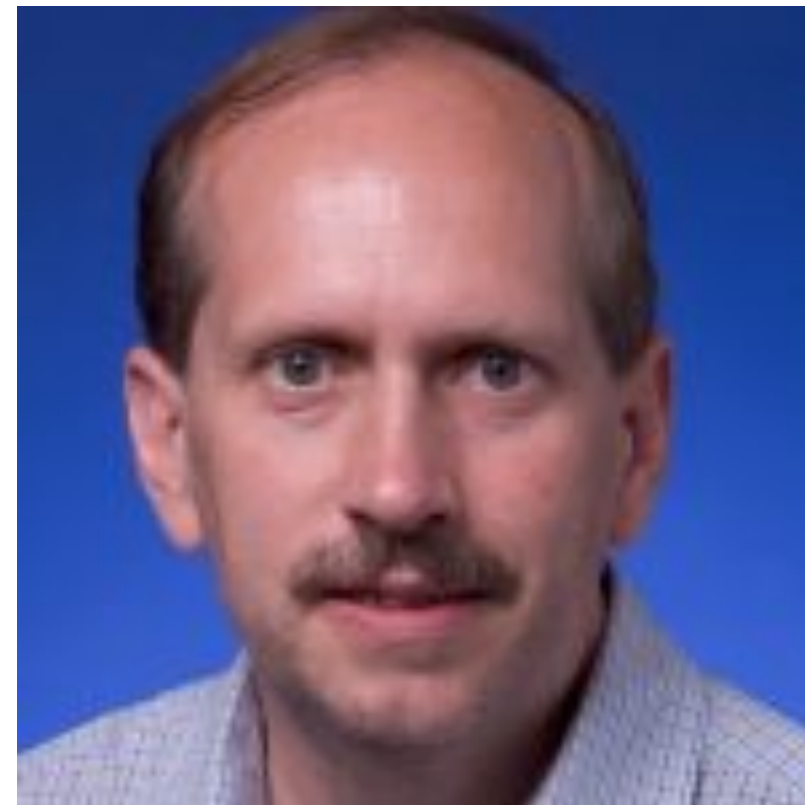
Scott Dodelson
(PPD Deputy Head)



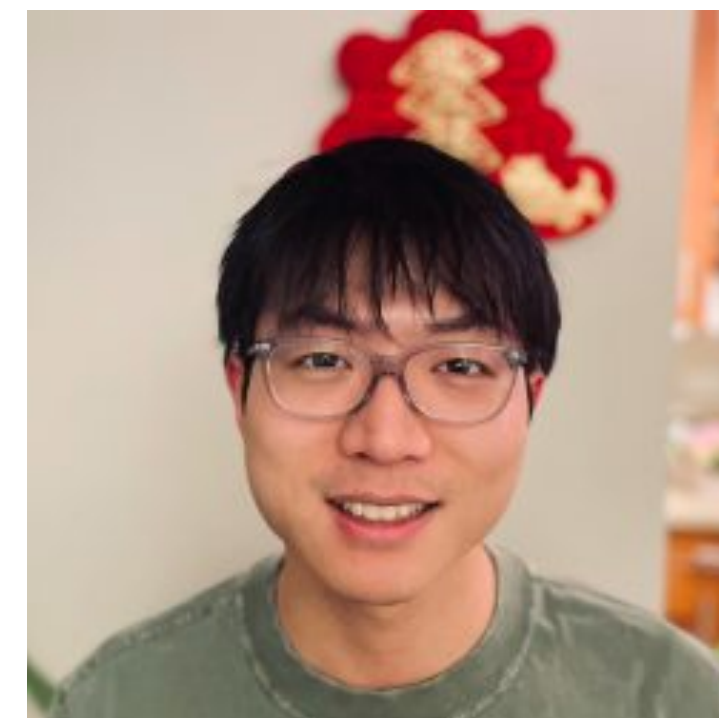
Dan Hooper, LOA



Gordan Krnjaic



Albert Stebbins



Huangyu Xiao

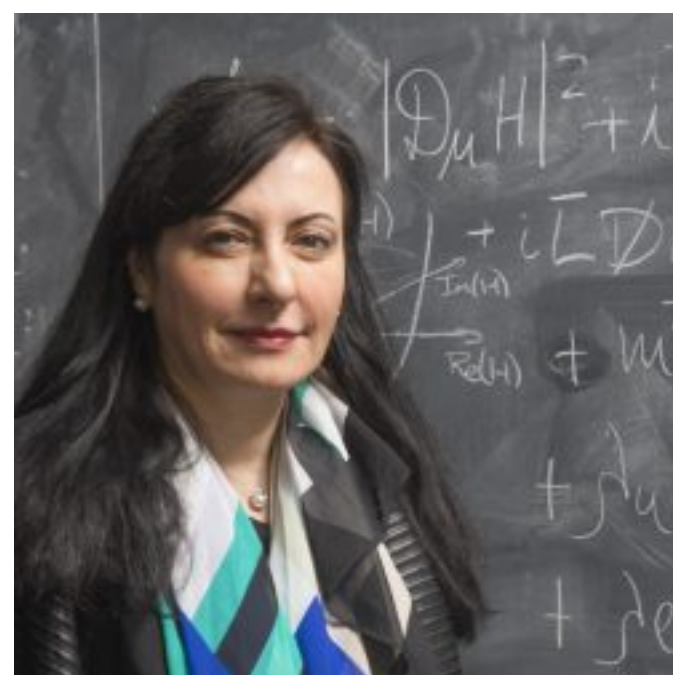
Existing members (Particle)



Bogdan Dobrescu
HOD



John Campbell



Marcela Carena



George Fleming



Walter Giele



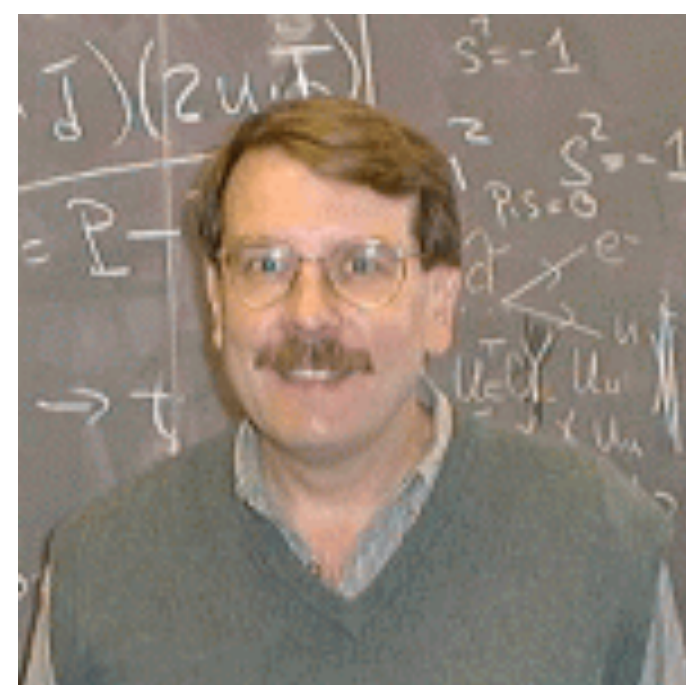
Stefan Hoeche



Andreas Kronfeld



Pedro Machado



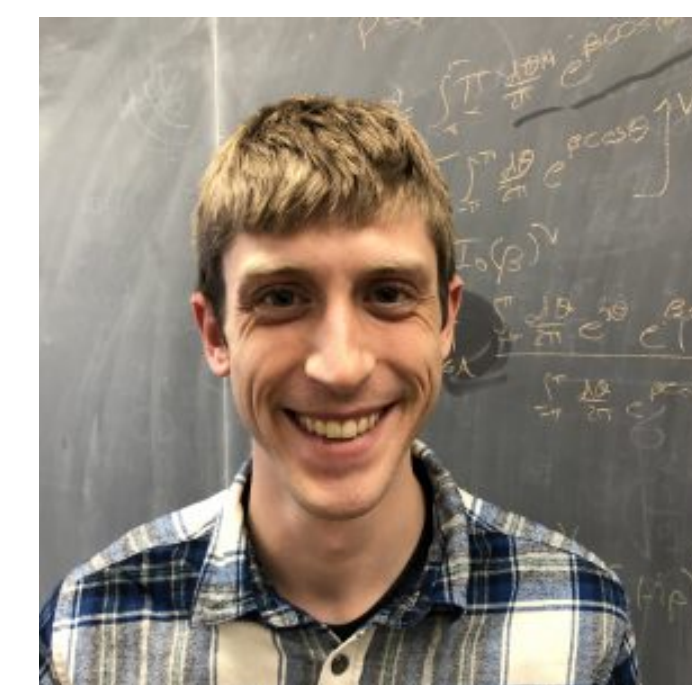
Stephen Parke



Noemi Rocco



Ruth Van de Water



Michael Wagman

Existing members (Particle, continued)



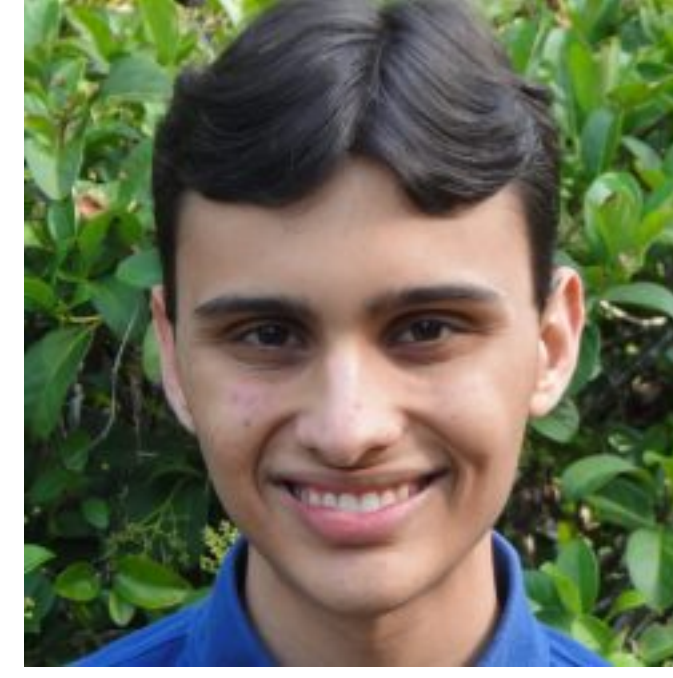
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Anthony Grebe



Daniel Hackett



Josh Isaacson



Karla Tames Narvaez



Alexis
Nikolakopoulos



Sandra Robles



Peter Vander
Griend



Isaac Wang



Bei Zhou

Existing members (Quantum)



Roni Harnik, HOD



Asher Berlin



Hank Lamm



Arushi Bodas



Sohitri Ghosh



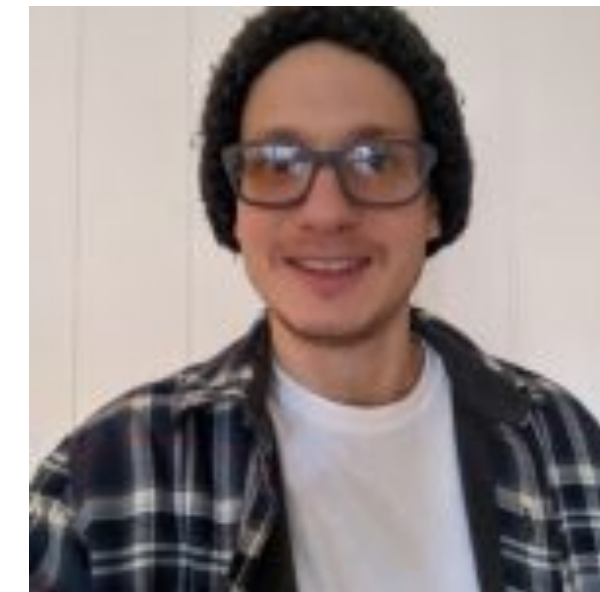
Alex Millar



Hersh Singh



Tanner Trickle



Judah Unmuth-Yockey

New Members

- Zach Bogorad
- Ting Cheng
- Josh Foster
- Max Knobbe
- Edison Murairi
- Noah Steinberg

A Week in the Life of a Theorist

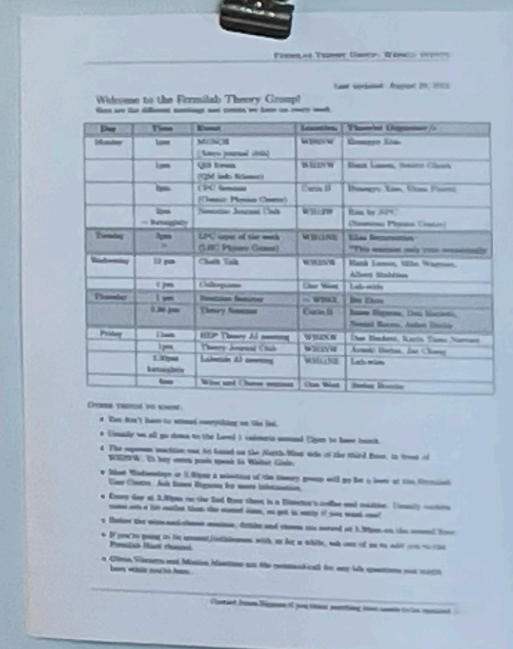
Also see <https://theory.fnal.gov/>

Thanks to Innes

Day	Time	Event	Location	Theorist Organiser/s
Monday	1pm	MUNCH (Astro journal club)	WH6NW	Huangyu Xiao
	1pm	QIS forum (QM Info Science)	WH3NW	Hank Lamm, Sohritri Ghosh
	2pm	CPC Seminar (Cosmic Physics Centre)	Curia II	Huangyu Xiao, Elena Pinetti
	2pm ~ fortnightly	Neutrino Journal Club	WH13W	Run by NPC (Neutrino Physics Centre)
Tuesday	3pm *	LPC topic of the week (LHC Physics Centre)	WH11NE	Elias Bernreuther *This seminar only runs occasionally
Wednesday	12 pm	Chalk Talk	WH3NW	Hank Lamm, Mike Wagman, Albert Stebbins
	4 pm	Colloquium	One West	Lab-wide
Thursday	1 pm	Neutrino Seminar	~ WH8X	Bei Zhou
	2.30 pm	Theory Seminar	Curia II	Innes Bigaran, Dan Hackett, Noemi Rocco, Asher Berlin
Friday	11am	HEP Theory AI meeting	WH3NW	Dan Hackett, Karla Tame Narvaez
	1pm	Theory Journal Club	WH3NW	Arushi Bodas, Jae Chang
	2.30pm fortnightly	Labwide AI meeting	WH11NE	Lab-wide
	4pm	Wine and Cheese seminar	One West	Stefan Hoeche

EVENTS

VISITOR	DATES	DESK	Interests	Host
Duncan Rocha (UChicago)	2024	342J	BSM Pheno/Cosmology	Carena
Michele Lucente (U Bologna)	→ 2025	372	ν 's, BSM, DS, GW	Machado
Tom Schwemberger (Oregon)	7/1/24 - 7/1/25	335 E	Neutrinos, Cosmo, BSM	Krnjaic
Kylar Greene (UNM)	Jan '24 - Oct '24	342M	Hubble tension, BSM	Krnjaic
Takuya Okawa (WashU)	→ Dec '24	342K	PBH/axion/sterile neutrino	Gnedin
Emily Koivu (OSU)	→ Dec '24	GW	PBH/cosmo	Rocco + Machado
Sam Carey (Wayne State)	8/15 - 12/15	342D	γ interactions (BSM/SM)	All
Drona Vatsyayan (IFIC)	8/5 - 9/24	342A	BSM, ν 's, DM	Machado
Garv Chauhan (Virginia Tech)	8/1 - 9/10	326	ν , astro, BSM pheno	Fox
Joachim Kopp (CERN+Mainz)	8/19 - 9/13	326	ν , BSM, Astro, QM	
MANUEL SZENC (U Guelph)	9/07 - 9/20	335G	collider pheno, BSM, HL	MRENNA
STEFANO PALMISANO (SAPIENZA)	9/05 - 11/06	342E	DM, cosmology, COLLIDERS	Krnjaic
FRANCESCO SERGIO (DURHAM)	10/09 - 24/09	342B	Outreach	Pasero
Ryuichiro Kitano (KEK)	9/16 - 9/27	326	BSM	Bogdan
Muhammad Asaduzzaman (UIOWA)	9/16 - 9/27	352	QM computation	Michael
Shohei Okawa (KEK)	9/16 - 9/27	369	BSM, DM	
Vincent Lee (Berkeley/UCSD)	9/19 - 9/20	323	BSM, DM, G, U, QG	
Ryutaro Matsuda (KEK)	9/16 - 9/27	323		



↑ VISITORS PLEASE TAKE ONE ☺



A Week in the Life of a Theorist



Typically people go for lunch ~12ish.
Can order cafeteria food online, there's an app!

<https://indico.fnal.gov/event/59656/page/3228-lunch-and-restaurant-options>



Theory Beer @ User's Centre, Wed 5:30ish



Director's Coffee and Cookies/Tea and Biscuits 3:00/3:30, WH2X



“Wine and Cheese” before Wine and Cheese, 3:30-4:00 Friday, WH2X



Nespresso machine on WH3W, see Walter to purchase coffee pods

