



# Report from the SAPES Co-Chair to the Community 2023 Competition

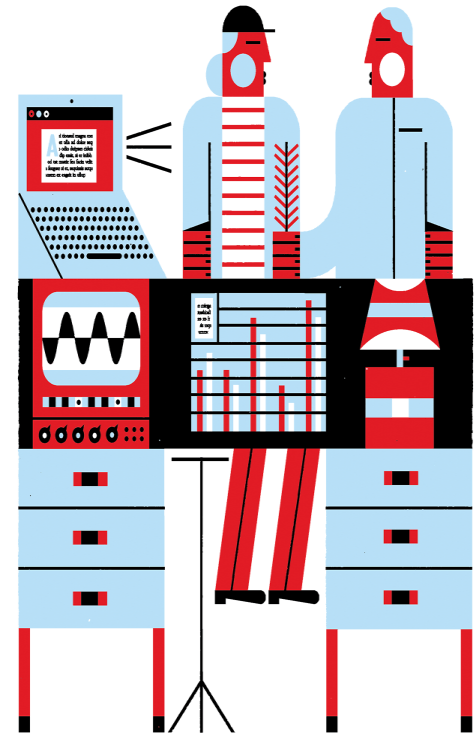
Presented by: Alison Lister, University of British Columbia

Congress of the Canadian Association of Physicists

June 22, 2023

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# The Subatomic Physics Evaluation Section

- The Subatomic Physics Evaluation Section (SAPES) is a standing review committee that oversees various programs:
  - Individual and Project Discovery Grants
  - Research Tools and Instruments (RTI - Category 1, 2 or 3) Grants
  - Major Resources Support (MRS) Grants
- Funded through a unique **independent envelope mechanism at NSERC**, since 1991
- This comprehensive approach is essential
  - Complexity and inter-dependency of many proposals
  - Country-wide collaborations among individuals, groups, universities, and national research organizations
  - Long-term and large-scale international projects and commitments
  - Possibility to exchange funds between the various programs as a function of the priorities of the community and the pressures it faces

# The Subatomic Physics Evaluation Section

## CY2023

Name	Institution	Term	Expertise
Thomas Brunner	McGill University	2022-2025	Exp. Neutrino Physics
Carmona-Benitez, Carmen	Pennsylvania State University	2022-2023	Exp. Astroparticle physics, Dark Matter
Mary Convery	Fermi National Accelerator Laboratory	2020-2023	Exp. Accelerator R&D
Paul Garrett	University of Guelph	2019-2020, 2021-2023	Exp. Nuclear Physics
Alexandros Gezerlis	University of Guelph	2022-2025	Th. Nuclear Astrophysics
Roxanne Guenette	University of Manchester	20225-2025	Exp. High Energy Physics
Nikolina Ilic	University of Toronto	2021-2024	Exp. Particle Physics
Alison Lister (Co-Chair)	University of British Columbia	2019-2021,2023	Exp. High Energy Nuclear & Particle Physics
David Morrissey	TRIUMF/University of Victoria	2021-2024	Th. Particle Physics
Meenakshi Narain	Brown University	2020-2023	Exp. High Energy Physics
Giulia Ricciardi	University of Naples	2022-2025	Th. High Energy Particle Physics
Matthias Schindler	South Carolina University	2021-2024	The. Nuclear Physics
Pedro Vieira	Perimeter Institute	2020-2023	Th. Particle Physics
Ingo Wiedenhoever (Co-Chair)	Florida State University	2020-2023	Exp. Nuclear Physics
Albert Young	North Carolina State University	2020-2023	Exp. IEP & NP

# The Subatomic Physics Evaluation Section

## Support to Operations

- Group Chair
  - Kristin Poduska, Memorial University of Newfoundland
    - Monitors consistency of deliberations for Physics in general
    - provides advice on procedures and policies as needed
    - Not a member; does not participate in reviews/votes
- NSERC Staff
  - Shashini Jayaratne, Program Assistant
  - Philip Bale & Kaitlyn Pomykala, Program Officers
  - Kevin Lapointe, Manager

**Many thanks  
from SAPES!!**

# Pre-Competition Details

- 47 applications
- Total requested: \$17.76M
- Available funds: \$10.70M
- Projected average funding rate: 60%\*

Compare to past funding rates:

2018	2019	2020	2021	2022
69%	64%	55%	42%	64%

\* A decision was made to maintain a funding rate post-competition similar to historic averages in order to manage future budget pressures.

# Virtual Competition

- In a continued response to Covid-19, the Discovery Grants 2023/2024 Competition was held virtually
- Additionally, NSERC offered extensions to all 2023/2024 awards
  - **With funds:** one-time extensions offered to all active DG and SAPMR holders
  - **Without funds:** extensions for grantees in their automatic 1 year for the residual use of DG and SAPMR funds
- Covid-19 Extension with Funds for 2023/2024:

	% of Accept	Total Extension Amount
SAPPJ	86%	\$1,920,500
SAPIN	100%	\$616,000
SAPMR	100%	\$230,500
<b>Grand Total</b>	95%	\$2,767,000



# Competition Week

- **February 19 – February 24, 2023**
- Large Project Day was held February 19<sup>th</sup>
  - Invited Participants received SAPES questions in advance:
    - Gamma-Ray Spectroscopy at ISAC
    - Global Argon Dark Matter Program
    - SNO+
    - SuperCDMS
    - Hyper-K
    - PICO
    - Belle-II
    - TUCAN
    - IceCube
- Assessment of applications done in 3 rounds
- Deliberations followed NSERC's policies and guidelines throughout all rounds of competition.
- All recommendations were determined through anonymized electronic voting, with the median vote selected as the final recommendation

# Competition Budget Pre-competition

**SUBATOMIC PHYSICS ENVELOPE**  
**MULTI-YEAR COMMITMENTS BY CATEGORY**  
**Competition 2023**

	2023	2024	2025	2026	2027
<b>RTI - COMMITTED</b>	\$119,910	\$157,500	\$0	\$0	
RTI - 2023 Competition	\$537,923	\$0	\$0	\$0	
<b>RTI - TOTAL</b>	<b>\$657,833</b>	<b>\$157,500</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>THEORY - COMMITTED</b>	\$3,078,200	\$1,824,300	\$978,200	\$551,000	\$115,000
THEORY - 2023 Competition	\$1,213,866	\$1,326,583	\$1,343,633	\$1,316,183	\$1,278,572
<b>THEORY - TOTAL</b>	<b>\$4,292,066</b>	<b>\$3,150,883</b>	<b>\$2,321,833</b>	<b>\$1,867,183</b>	<b>\$1,393,572</b>
<b>EXP OPS** - COMMITTED</b>	\$13,273,330	\$10,450,105	\$505,830	\$120,005	
EXP OPS - 2023 Competition	\$15,431,229	\$17,313,082	\$14,709,826	\$471,315	\$470,080
<b>EXP OPS - TOTAL</b>	<b>\$28,704,559</b>	<b>\$27,763,187</b>	<b>\$15,215,656</b>	<b>\$591,320</b>	<b>\$470,080</b>
<b>MRS - COMMITTED</b>	\$2,440,500	\$820,000	\$0	\$0	
MRS - 2023 Competition	\$577,267	\$606,543	\$628,205	\$649,005	\$670,425
<b>MRS - TOTAL</b>	<b>\$3,017,767</b>	<b>\$1,426,543</b>	<b>\$628,205</b>	<b>\$649,005</b>	<b>\$670,425</b>
<b>TOTAL - COMMITTED</b>	\$18,911,940	\$13,251,905	\$1,484,030	\$671,005	\$115,000
TOTAL - 2023 Competition	\$17,760,285	\$19,246,208	\$16,681,664	\$2,436,503	\$2,419,077
<b>GRAND TOTAL</b>	<b>\$36,672,225</b>	<b>\$32,498,113</b>	<b>\$18,165,694</b>	<b>\$3,107,508</b>	<b>\$2,534,077</b>
<b>TOTAL ENVELOPE</b>	<b>\$29,159,960</b>	<b>\$29,159,960</b>	<b>\$29,159,960</b>	<b>\$29,159,960</b>	<b>\$29,159,960</b>
<b>AVAILABLE</b>	<b>-\$7,060,285</b>	<b>-\$3,338,153</b>	<b>\$10,994,266</b>	<b>\$26,052,452</b>	<b>\$26,625,883</b>

\*\*EXP OPS = Experimental Operations – Includes Project grants and experimental Individual grants

# Competition Week

## Round 1

- Presentation by the **first** reviewer, followed by discussion with the **second through fifth** reviewers on merit criteria, as well as the budget
- **Five** reviewers vote anonymously:
  - Merit Criteria
  - Recommended Budget

## Rounds 2 and 3

- Discussion by all **five** reviewers, related to the budget
- **Five** reviewers vote anonymously:
  - Recommended Budget

# Multiyear Commitments at End of Competition

**SUBATOMIC PHYSICS ENVELOPE**  
**MULTI-YEAR COMMITMENTS BY CATEGORY**  
**Competition 2023**

	2023	2024	2025	2026	2027
<b>RTI - COMMITTED</b>	\$119,910	\$157,500	\$0	\$0	
RTI - 2023 Competition	\$0	\$0	\$0	\$0	
<b>RTI - TOTAL</b>	<b>\$119,910</b>	<b>\$157,500</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>THEORY - COMMITTED</b>	\$3,078,200	\$1,824,300	\$978,200	\$551,000	\$115,000
THEORY - 2023 Competition	\$623,000	\$623,000	\$623,000	\$623,000	\$623,000
<b>THEORY - TOTAL</b>	<b>\$3,701,200</b>	<b>\$2,447,300</b>	<b>\$1,601,200</b>	<b>\$1,174,000</b>	<b>\$738,000</b>
<b>EXP OPS** - COMMITTED</b>	\$13,273,330	\$10,450,105	\$505,830	\$120,005	
EXP OPS - 2023 Competition	\$9,529,000	\$9,826,000	\$6,354,000	\$176,000	\$177,000
<b>EXP OPS - TOTAL</b>	<b>\$22,802,330</b>	<b>\$20,276,105</b>	<b>\$6,859,830</b>	<b>\$296,005</b>	<b>\$177,000</b>
<b>MRS - COMMITTED</b>	\$2,440,500	\$820,000	\$0	\$0	
MRS - 2023 Competition	\$476,267	\$502,543	\$429,115	\$435,865	\$451,245
<b>MRS - TOTAL</b>	<b>\$2,916,767</b>	<b>\$1,322,543</b>	<b>\$429,115</b>	<b>\$435,865</b>	<b>\$451,245</b>
<b>TOTAL - COMMITTED</b>	\$18,911,940	\$13,251,905	\$1,484,030	\$671,005	\$115,000
TOTAL - 2023 Competition	\$10,628,267	\$10,951,543	\$7,406,115	\$1,234,865	\$1,251,245
<b>GRAND TOTAL</b>	<b>\$29,540,207</b>	<b>\$24,203,448</b>	<b>\$8,890,145</b>	<b>\$1,905,870</b>	<b>\$1,366,245</b>
<b>TOTAL ENVELOPE</b>	<b>\$29,159,960</b>	<b>\$29,159,960</b>	<b>\$29,159,960</b>	<b>\$29,159,960</b>	<b>\$29,159,960</b>
<b>AVAILABLE</b>	<b>\$71,733</b>	<b>\$4,956,512</b>	<b>\$20,269,815</b>	<b>\$27,254,090</b>	<b>\$27,793,715</b>

\*\*EXP OPS = Experimental Operations – Includes Project grants and experimental Individual grants

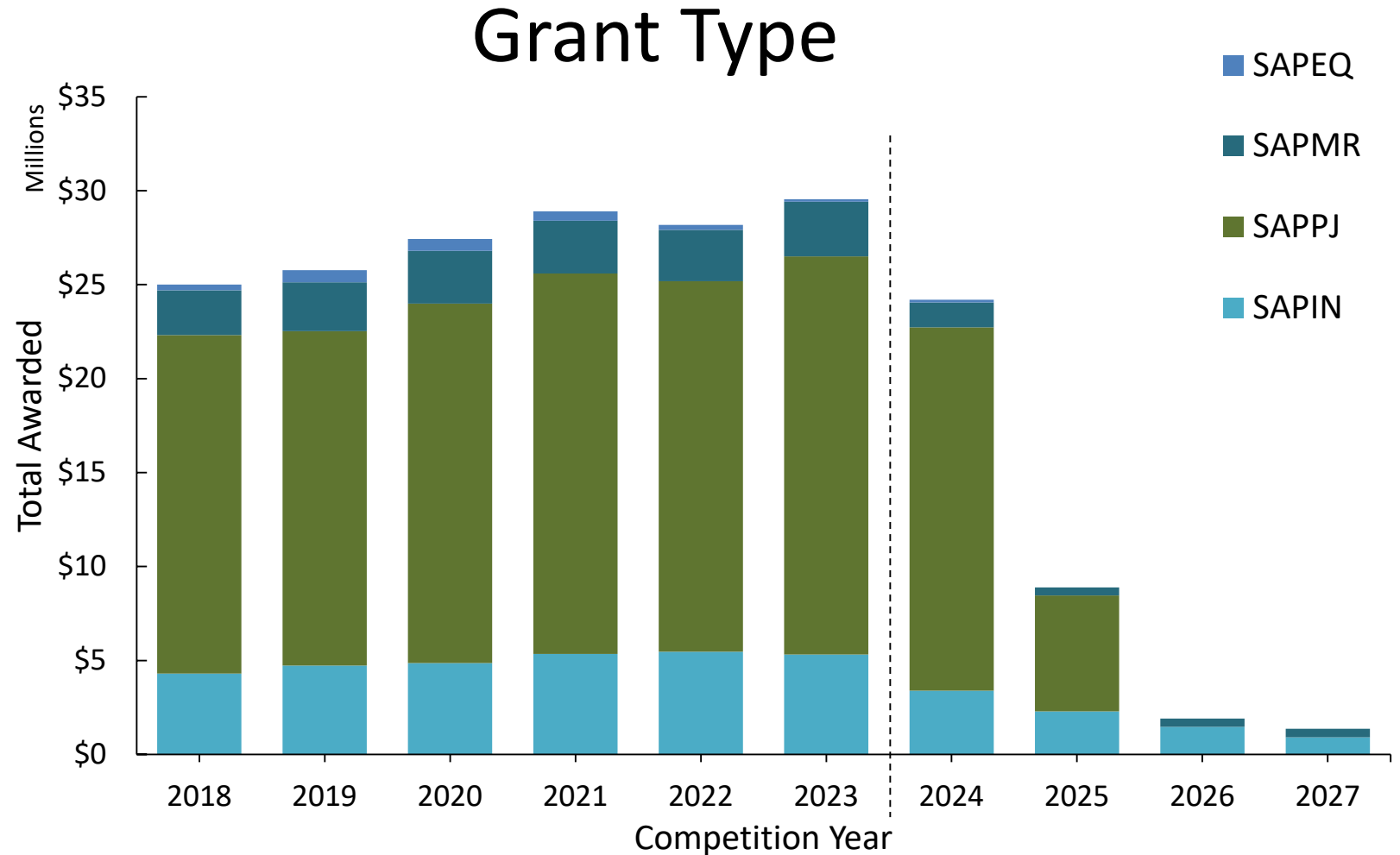
All remaining funds will be added to the SAP envelope for CY2024.

# Share of Envelope at End of Competition

## Comparison to Past Years

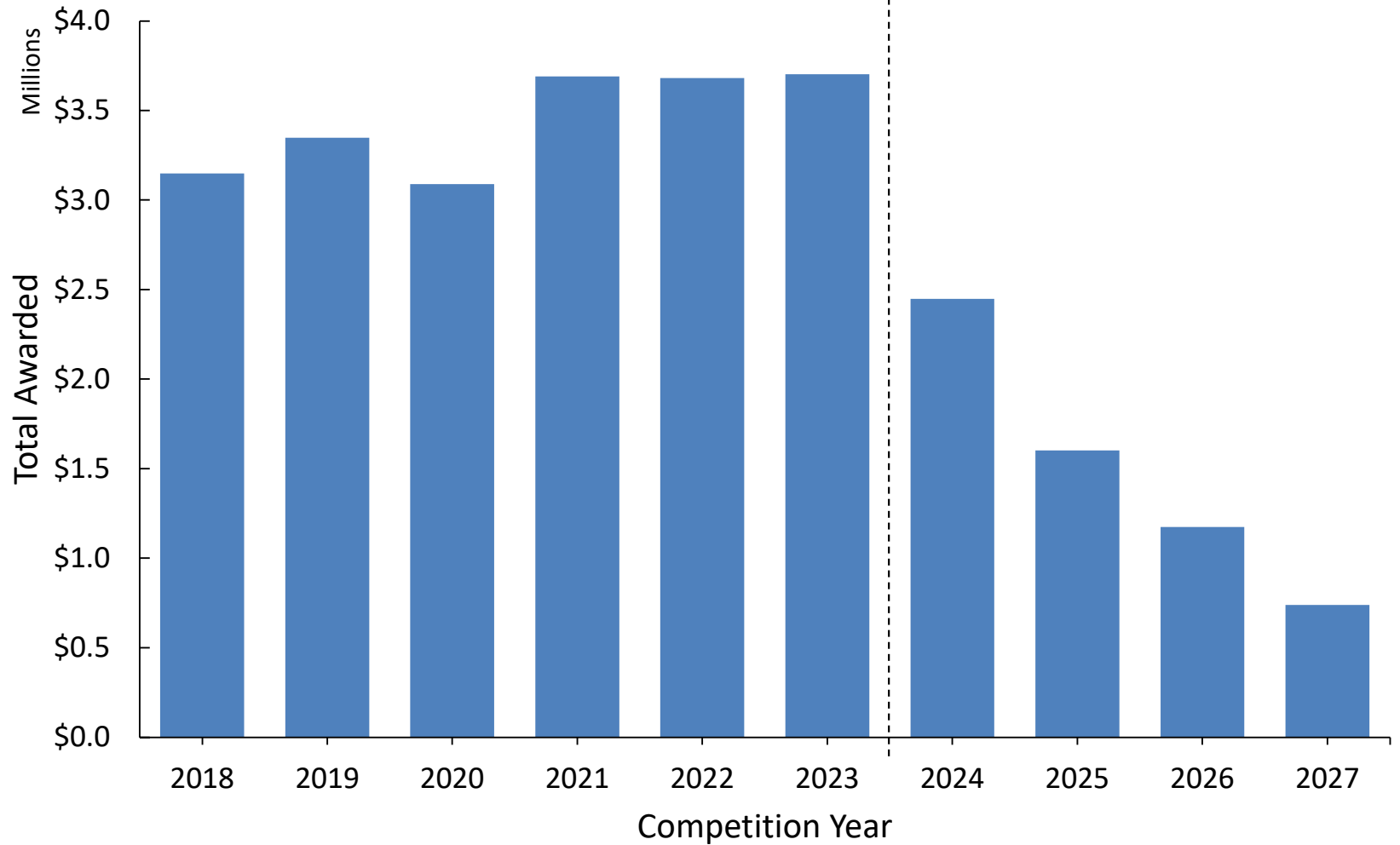
	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
<b>Theory</b>	<b>13%</b>	<b>13%</b>	<b>11%</b>	<b>13%</b>	<b>13%</b>	<b>13%</b>
<b>RTI</b>	<b>1.2%</b>	<b>2.5%</b>	<b>2.0%</b>	<b>1.7%</b>	<b>0.9%</b>	<b>0.4%</b>
<b>Total Research Ops</b>	<b>86%</b>	<b>84%</b>	<b>86%</b>	<b>86%</b>	<b>86%</b>	<b>88%</b>
<b>Exp. Ops</b>	<b>77%</b>	<b>74%</b>	<b>76%</b>	<b>76%</b>	<b>77%</b>	<b>78%</b>
<b>MRS</b>	<b>10%</b>	<b>10%</b>	<b>10%</b>	<b>10%</b>	<b>9%</b>	<b>10%</b>

# Evolution of SAPES Awards



# Evolution of SAPES Awards

## Theory

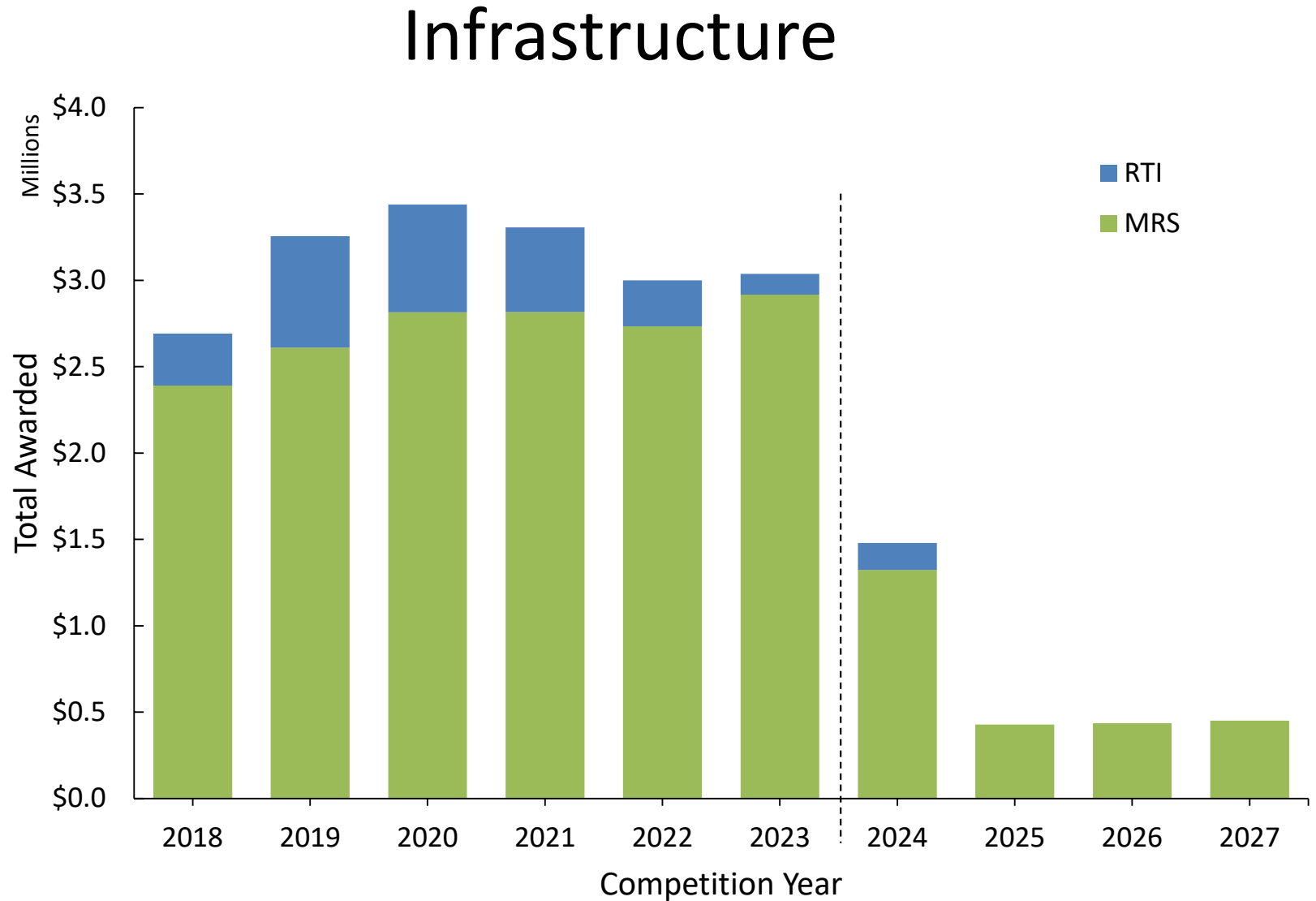


# Theory Results 2018-2023

	2018	2019	2020	2021	2022	2023
Number of Theory applications received	12	14	17	10	11	15
Theory success rate	75.00%	78.57%	82.35%	80.00%	81.82%	73.33%
% of applications submitted that were Theory	30.77%	23.73%	29.82%	21.28%	26.19%	31.91%
% of amount requested from Theory	6.99%	7.28%	15.01%	12.10%	5.66%	6.83%
% of amount awarded to Theory	4.83%	7.19%	16.07%	15.48%	4.80%	5.86%
Theory funding rate	51.30%	63.51%	60.45%	50.70%	59.16%	51.32%
Funding rate overall for that CY	74.17%	64.28%	56.45%	39.63%	69.74%	59.84%
Theory Envelope Share (includes ongoing commitments)	12.62%	13.00%	11.35%	12.77%	13.06%	12.69%



# Evolution of SAPES Awards



# Tri-Agency Research Data Management (RDM) Policy



## Institutional Strategies

Post-secondary institutions and research hospitals eligible to administer CIHR, NSERC or SSHRC funds are required to publish an RDM strategy.

***Over 120 strategies were received by the agencies by the deadline of March 1, 2023***



## Data Management Plans (DMPs)

Certain funding opportunities will require DMPs to be submitted at time of application. NSERC's upcoming pilot:

***Subatomic Physics Discovery Grants – Individual and Project***



## Data Deposit

Grant recipients will be required to deposit into a digital repository all digital research data, metadata and code that directly support the research conclusions in journal publications and pre-prints that arise from agency-supported research.

***In the planning stage***

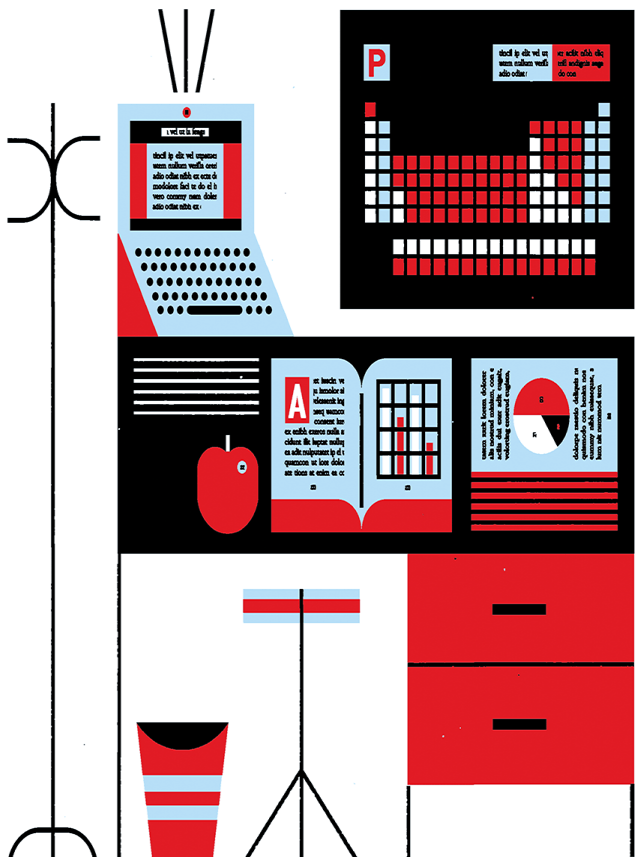
## Data Management Plan Pilot in Subatomic Physics

- Data Management Plans (DMPs) will be piloted in the Subatomic Physics Discovery Grants – Individual and Project for competition 2024 (to launch in summer 2023)
- Over the past year, NSERC has engaged with the Subatomic Physics community and international funders
- Strategic decisions that will guide the pilot:
  - 2-page limit for free form DMPs or a file size limit for DMPs produced with DMP Assistant
  - DMPs will not be formally evaluated but reviewers will be asked to comment on DMPs
- Broader implementation of the DMP requirement will be informed by continued engagement with the research community, CIHR, SSHRC and the Digital Research Alliance of Canada

## Feedback

# Feedback from this year (personal, not NSERC/SAPES)

- **EDI**
  - Much improvement over past few years (since this started): GREAT!
  - Keep up the excellent work and ideas you have
- **FTE (Project grants)**
  - Please make every effort to harmonise across sources for PI FTE in particular (CV, details in proposal,...). Consistency could be improved (for many proposals). Makes our job easier
  - Be thoughtful about the contributions for low FTE contributing applicants: what are they bringing and how could they bring that with a few hours a month? E.g. do they need to be co-applicants or mention their support somewhere else?
- **HQP**
  - Try and be as specific as possible about exactly what each HQP will be doing (plans change over 3-5 years but there must be a best guess of the plan)
- **SAPES** is an 'expert committee'
  - We are all in the same broad area of expertise so carefully think about the space taken for motivation/intro. Target it at experienced particle & nuclear physicists



# Questions?

**Philip Bale & Kaitlyn Pomykala**

Program Officers, Subatomic Physics

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