



Report from the SAPES Co-Chair to the Community 2021 Competition

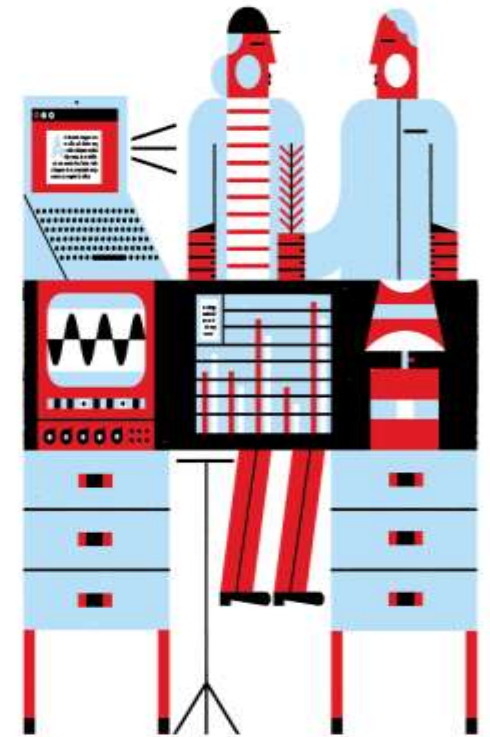
Presented by: Alison Lister, University of British Columbia

Congress of the Canadian Association of Physicists

June 11, 2021 – Virtual Congress

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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

CY2021

Name	Institution	Term	Expertise
Mary Convery	Fermi National Accelerator Laboratory	2020-2023	Exp. Accelerator R&D
Thomas Gregoire (Co-Chair)	Carleton University	2018-2021	Th. HEP/Energy Frontier
David Hornidge	Mount Allison University	2018-2021	Exp. IEP & NP
Charles Horowitz	Indiana University	2018-2021	Th. Nuclear Astrophysics
Georgia Karagiorgi	Columbia University	2019-2022	Exp. High Energy Physics, Neutrino Properties
Alison Lister (Co-Chair)	University of British Columbia	2019-2022	Exp. Energy Frontier, Dark Sector
Meenakshi Narain	Brown University	2020-2023	Exp. High Energy Physics
Roxanne Springer	Duke University	2019-2022	Th. Nuclear Physics
Pedro Vieira	Perimeter Institute	2020-2023	Th. Particle Physics
Ingo Wiedenhoefer	Florida State University	2020-2023	Exp. Nuclear Physics
Alexander Wright	Queen's University	2019-2022	Exp. Particle Astrophysics
Albert Young	North Carolina State University	2020-2023	Exp. IEP & NP

The Subatomic Physics Evaluation Section

Support to Operations

- Group Chair
 - Sara Ellison, University of Victoria
 - 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
 - Amber Constantineau, Program Assistant
 - Philip Bale & Kaitlyn Pomykala, Program Officers
 - Kevin Lapointe, Team Leader
 - Elizabeth Boston, Director

**Many thanks
from SAPES!!**

Virtual Competition

- In response to Covid-19, the Discovery Grants 2020/2021 Competition was held by videoconference
- Additionally, NSERC offered extensions to all 2020/2021 awards
 - **With funds:** extensions offered to all active DG holders
 - **Without funds:** extensions for grantees in their automatic 1 year for the residual use of DG funds
- Covid-19 Extension with Funds for 2020/2021:

	% of Accept	Total Extension Amount
SAPPJ	75%	\$9,027,000
SAPIN	92%	\$626,000
SAPMR	100%	\$740,817
Grand Total	83%	\$10,393,817

Pre Competition Details

- 47 applications
- Total requested: \$5.660M
- Available funds: \$2.397M
- Projected average funding rate: 42%

Compare to past funding rates:

2016	2017	2018	2019	2020
56%	74%	69%	64%	55%

All Project and Individual Experimental applications were reviewed with the entire section present. The section was then divided into two sub-sections to review the Individual Theory and the RTI-Category 1 applications. No MRS or RTI-Category 2/3 applications were received.

Quota of one (1) Discovery Accelerator Supplement (DAS) for the SAPES in 2021.

Large Project Day

Large Project Day was held February 21, 2021 virtually:

- Invited Participants received SAPES questions in advance
 - ARGO
 - Darkside 20k
- Presentations by institutional representatives:
 - CFI
 - IPP
 - CINP
 - Perimeter Institute
 - McDonald Institute
 - SNOLAB
 - TRIUMF

*Note: No Expert Reviews were completed this year

Competition Week

- **February 22 – February 26, 2021** [Virtually]
- Assessment of applications done in 2 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
- **New for CY2021:** SAP moved to a five-reviewer model to harmonize with the DG Program
 - All SAPES members may contribute to discussion, but only assigned reviewers may vote on merit criteria and budget

Competition Budget

SUBATOMIC PHYSICS ENVELOPE
MULTI-YEAR COMMITMENTS BY CATEGORY
Pre-Comp 2021

	2021	2022	2023	2024	2025
RTI - COMMITTED	\$0	\$0	\$0	\$0	\$0
RTI - 2021 Competition Requested	\$1,130,514	\$0	\$0	\$0	\$0
RTI - TOTAL	\$1,130,514	\$0	\$0	\$0	\$0
THEORY - COMMITTED	\$3,343,000	\$2,103,000	\$1,584,000	\$877,000	\$0
THEORY - 2021 Competition Requested	\$684,850	\$757,970	\$711,290	\$779,210	\$755,890
THEORY - TOTAL	\$4,027,850	\$2,860,970	\$2,295,290	\$1,656,210	\$755,890
EXP OPS - COMMITTED	\$20,494,007	\$2,918,500	\$529,000	\$258,000	\$0
EXP OPS - 2021 Competition Requested	\$3,844,989	\$4,010,570	\$3,419,224	\$742,085	\$679,922
EXP OPS - TOTAL	\$24,338,996	\$6,929,070	\$3,948,224	\$1,000,085	\$679,922
MRS - COMMITTED	\$2,816,032	\$1,705,500	\$1,475,000	\$75,000	\$0
MRS - 2021 Competition Requested	\$0	\$0	\$0	\$0	\$0
MRS - TOTAL	\$2,816,032	\$1,705,500	\$1,475,000	\$75,000	\$0
TOTAL - COMMITTED	\$26,653,039	\$6,727,000	\$3,588,000	\$1,210,000	\$0
TOTAL - 2021 Competition Requested	\$5,660,353	\$4,768,540	\$4,130,514	\$1,521,295	\$1,435,812
GRAND TOTAL	\$32,313,392	\$11,495,540	\$7,718,514	\$2,731,295	\$1,435,812
TOTAL ENVELOPE	\$28,683,651	\$29,159,960	\$29,159,960	\$29,159,960	\$29,159,960
REIMBURSEMENT from past FY	\$366,900	\$0	\$0	\$0	\$0
AVAILABLE	-\$3,262,841	\$17,664,420	\$21,441,446	\$26,428,665	\$27,724,148

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

Round 2

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

Budget Balancing

- Total requested: \$5.660M
- Available funds: \$2.397M

Round	Recommended Amount	Total Available	Difference
1	\$3,430,648	\$2,397,512	\$1,033,136
2	\$2,243,122	\$2,397,512	-\$154,390

After Round 2, the recommended amount was less than the available envelope, and therefore there was no Round 3.

The remaining \$154,390 will be added to the SAP envelope for CY2022.

Multiyear Commitments at End of Competition

SUBATOMIC PHYSICS ENVELOPE MULTI-YEAR COMMITMENTS BY CATEGORY Competition 2021					
	2021	2022	2023	2024	2025
RTI - COMMITTED	\$0	\$0	\$0	\$0	\$0
RTI - 2021 Competition	\$489,922	\$0	\$0	\$0	\$0
RTI - TOTAL	\$489,922	\$0	\$0	\$0	\$0
THEORY - COMMITTED	\$3,343,000	\$2,103,000	\$1,584,000	\$877,000	\$0
THEORY - 2021 Competition	\$347,200	\$341,300	\$347,200	\$341,300	\$347,200
THEORY - TOTAL	\$3,690,200	\$2,444,300	\$1,931,200	\$1,218,300	\$347,200
EXP OPS - COMMITTED	\$20,494,007	\$2,918,500	\$529,000	\$258,000	\$0
EXP OPS - 2021 Competition	\$1,406,000	\$1,540,500	\$645,000	\$387,000	\$387,000
EXP OPS - TOTAL	\$21,900,007	\$4,459,000	\$1,174,000	\$645,000	\$387,000
MRS - COMMITTED	\$2,816,032	\$1,572,000	\$1,475,000	\$75,000	\$0
MRS - 2021 Competition	\$0	\$0	\$0	\$0	\$0
MRS - TOTAL	\$2,816,032	\$1,572,000	\$1,475,000	\$75,000	\$0
TOTAL - COMMITTED	\$26,653,039	\$6,593,500	\$3,588,000	\$1,210,000	\$0
TOTAL - 2021 Competition	\$2,243,122	\$1,881,800	\$992,200	\$728,300	\$734,200
GRAND TOTAL	\$28,896,161	\$8,475,300	\$4,580,200	\$1,938,300	\$734,200
TOTAL ENVELOPE	\$28,683,651	\$29,159,960	\$29,159,960	\$29,159,960	\$29,159,960
REIMBURSEMENT from past FY	\$366,900	\$154,390	\$0	\$0	\$0
AVAILABLE	\$154,390	\$20,839,050	\$24,579,760	\$27,221,660	\$28,425,760

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

Share of Envelope at End of Competition

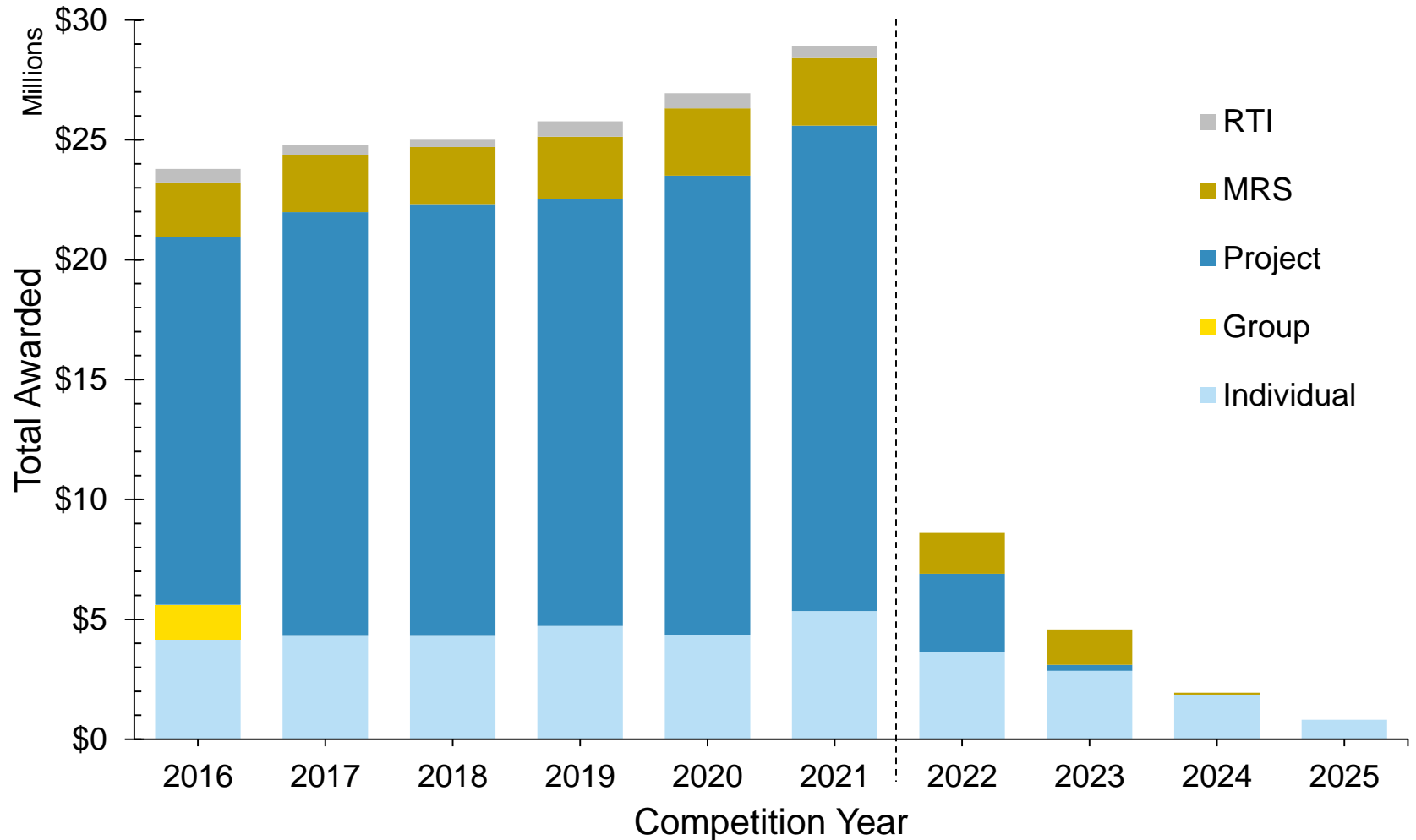
Comparison to Past Years

Subatomic Physics Evaluation Section						
Evolution of Envelope's Shares						
	2016	2017	2018	2019	2020	2021
Theory	14%	13%	13%	13%	11%	13%
RTI	2%	2%	1%	3%	2%	2%
Total Research Ops	84%	85%	86%	84%	86%	86%
Exp. Ops	74%	75%	77%	74%	76%	76%
MRS	9%	10%	10%	10%	10%	10%

- Total requested: \$5.660M
- Total Recommended: \$2.243M
- Final Funding Rate: 40%

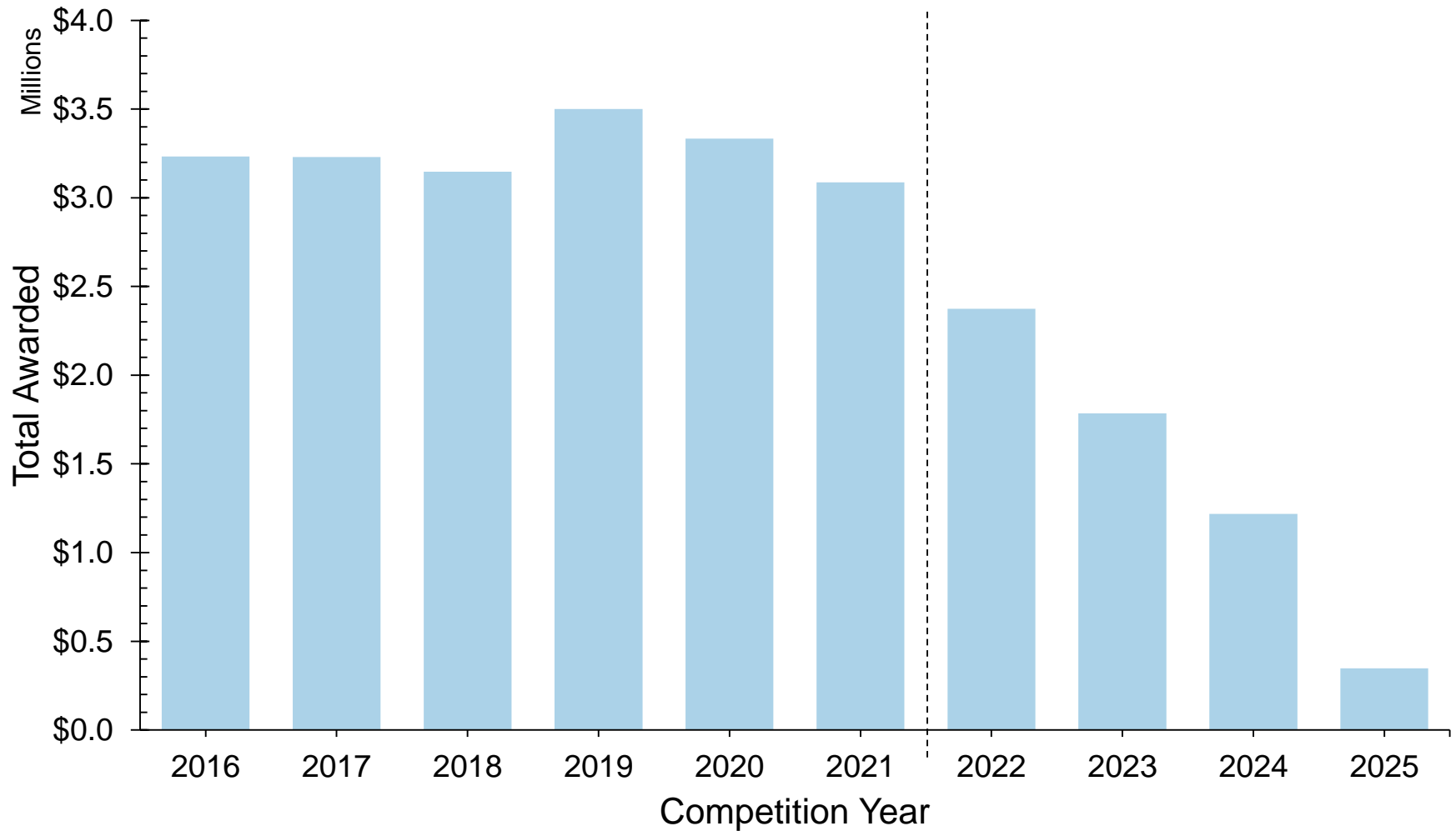
Evolution of SAPES Awards

Grant Type



Evolution of SAPES Awards

Theory Awards

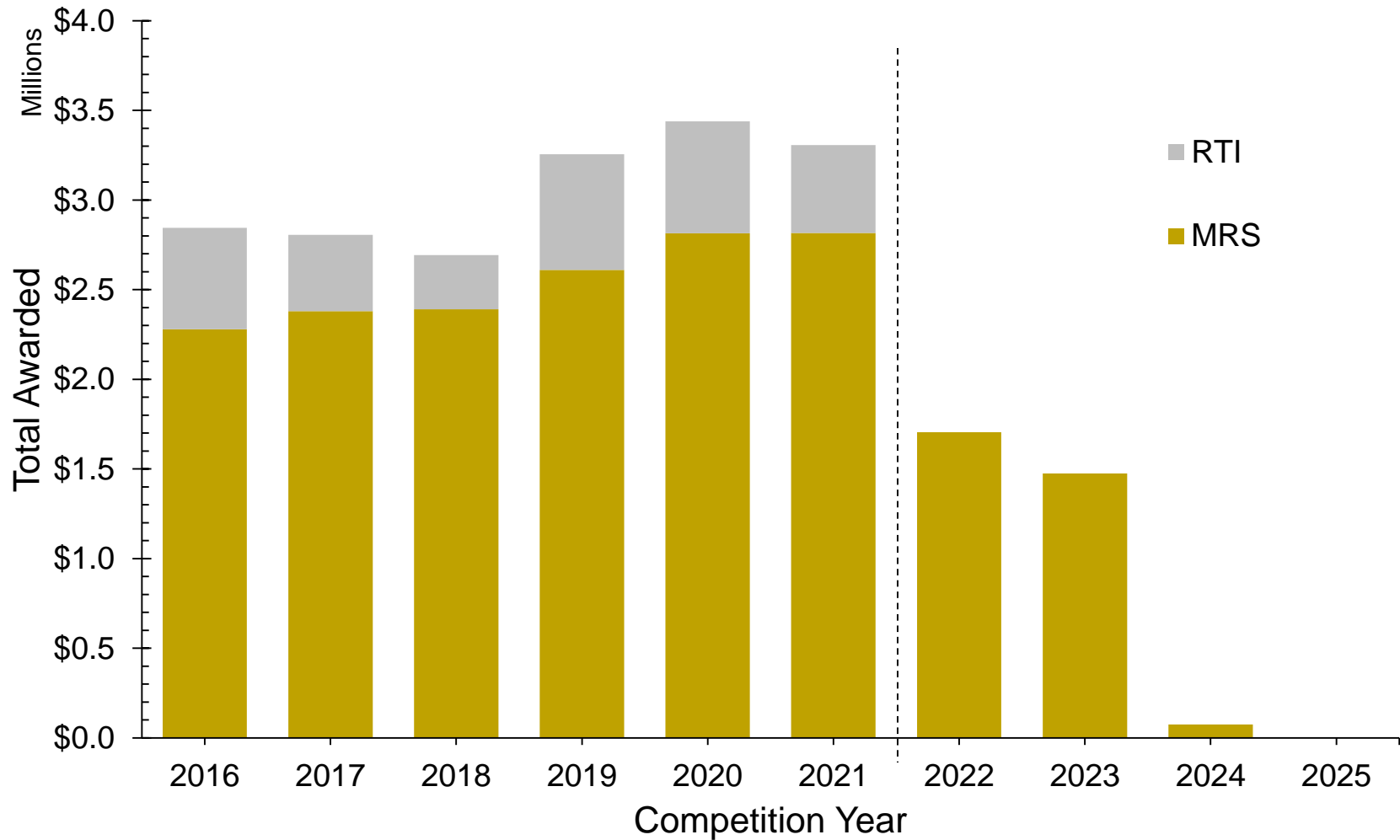


Theory Results 2016-2021

	2016	2017	2018	2019	2020	2021
Number of Theory applications received	13	13	12	14	17	10
Theory success rate	100.00%	100.00%	75.00%	78.57%	82.35%	80.00%
% of applications submitted that were Theory	22.41%	25.49%	30.77%	23.73%	29.82%	21.28%
% of amount requested from Theory	8.17%	7.18%	6.99%	7.28%	15.01%	12.10%
% of amount awarded to Theory	8.29%	6.87%	4.83%	7.19%	16.07%	15.48%
Theory funding rate	56.95%	55.64%	51.30%	63.51%	60.45%	50.70%
Funding rate overall for that CY	56.06%	58.13%	74.17%	64.28%	56.45%	39.63%
Theory Envelope Share (includes ongoing commitments)	14.01%	13.23%	12.62%	13.00%	11.35%	12.77%

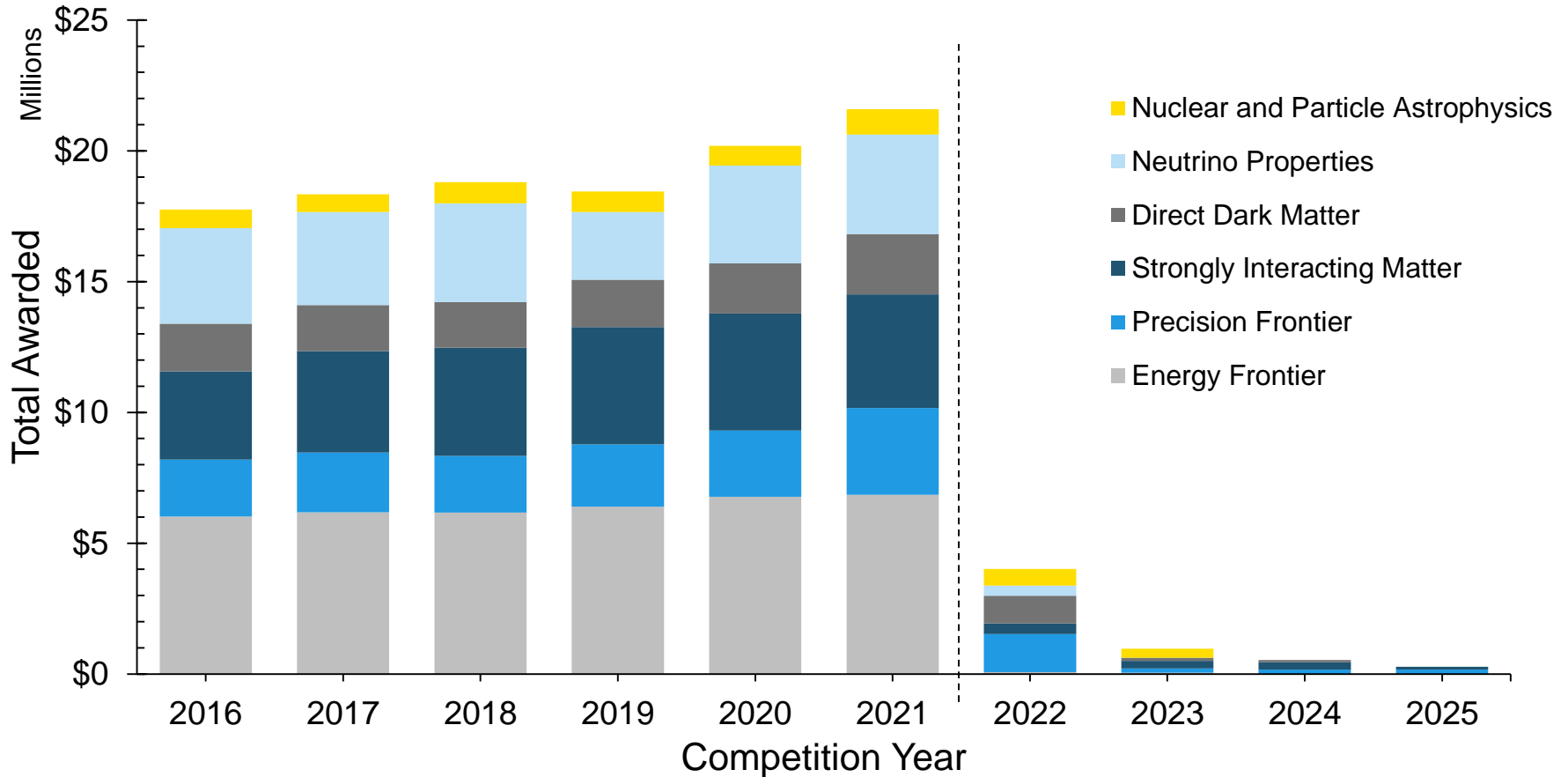
Evolution of SAPES Awards

Infrastructure Funding



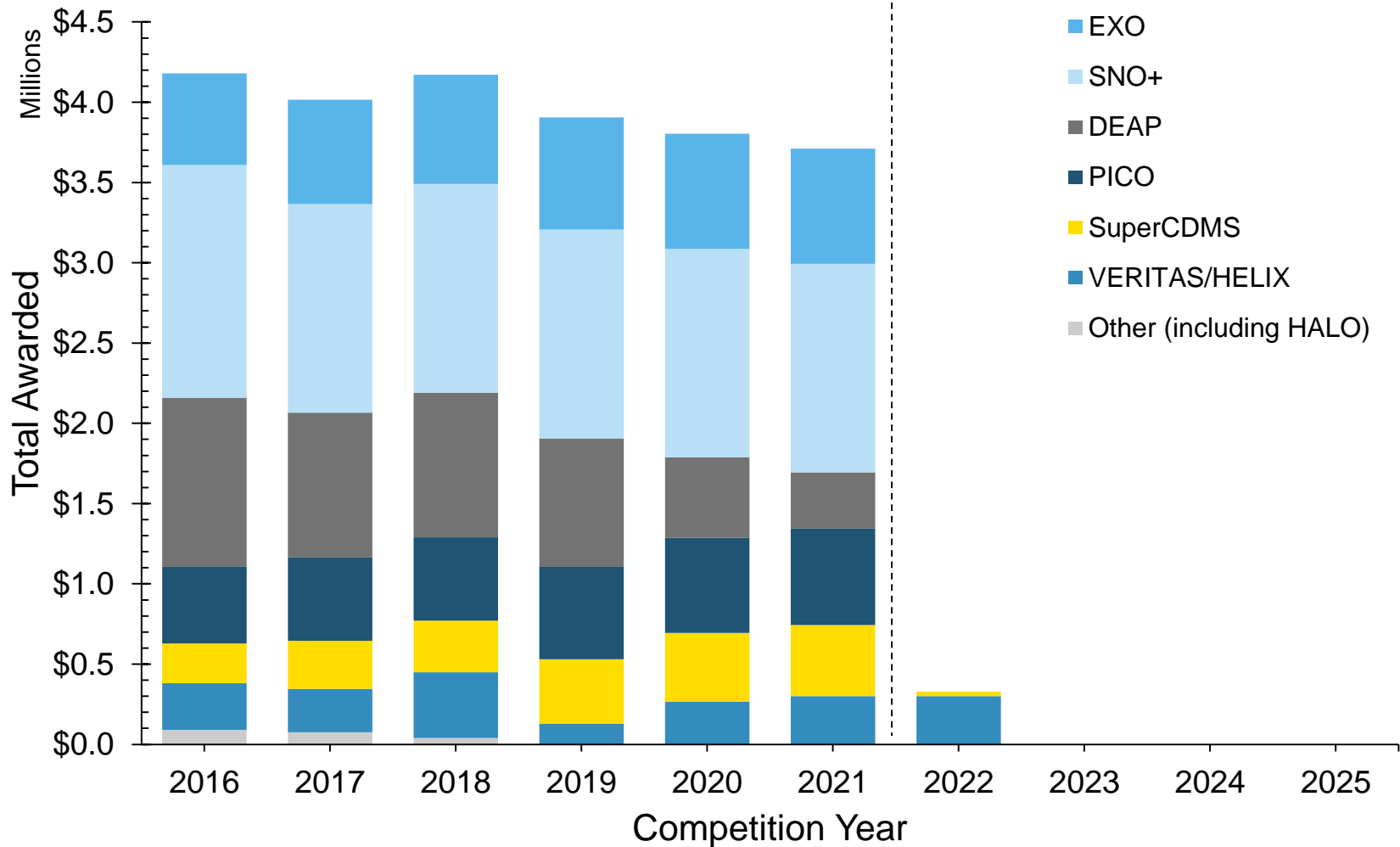
Evolution of SAPES Awards

Fundamental Subatomic Physics



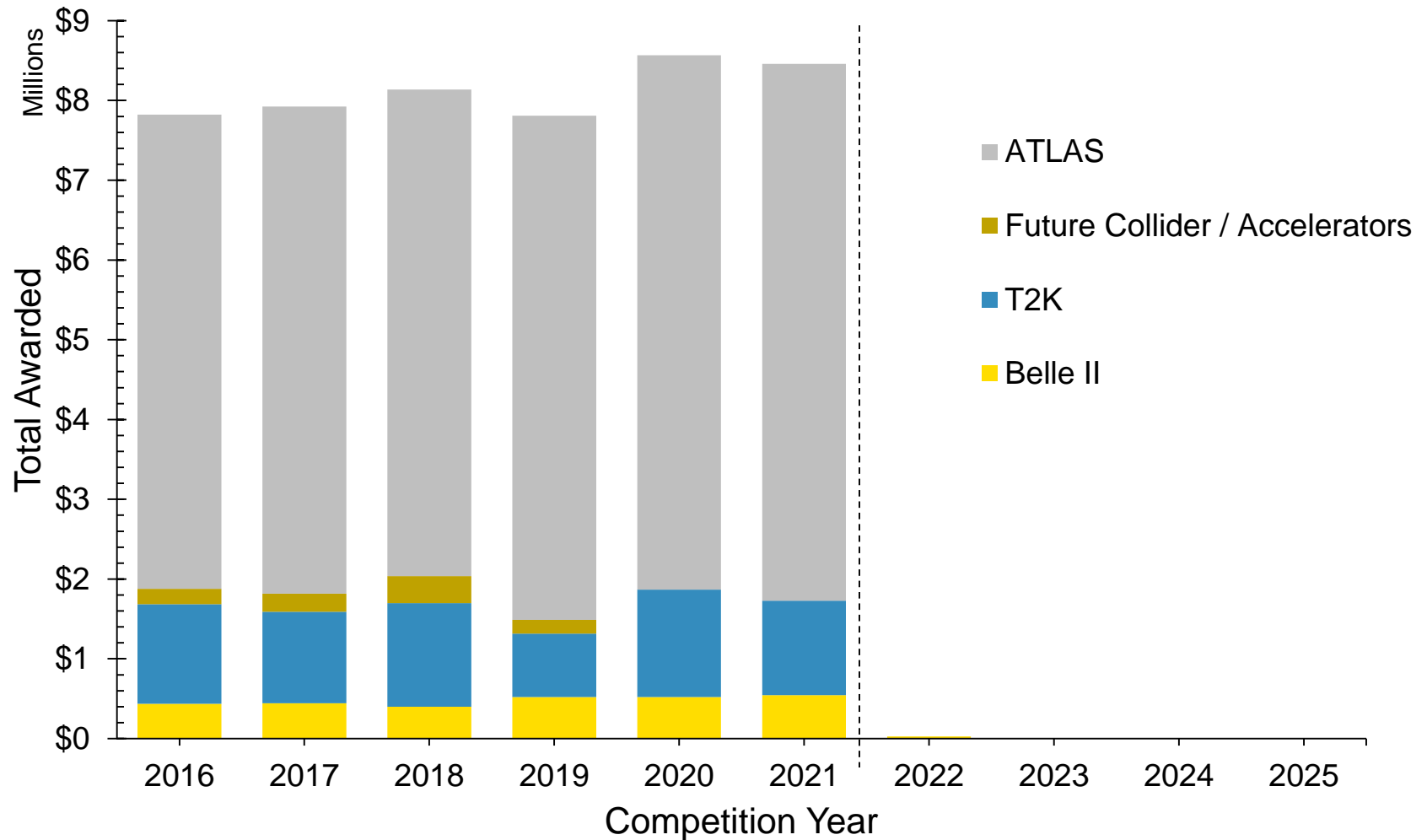
Evolution of SAPES Awards

SNO / SNOLAB / Particle Astrophysics



Evolution of SAPES Awards

High Energy Physics Projects



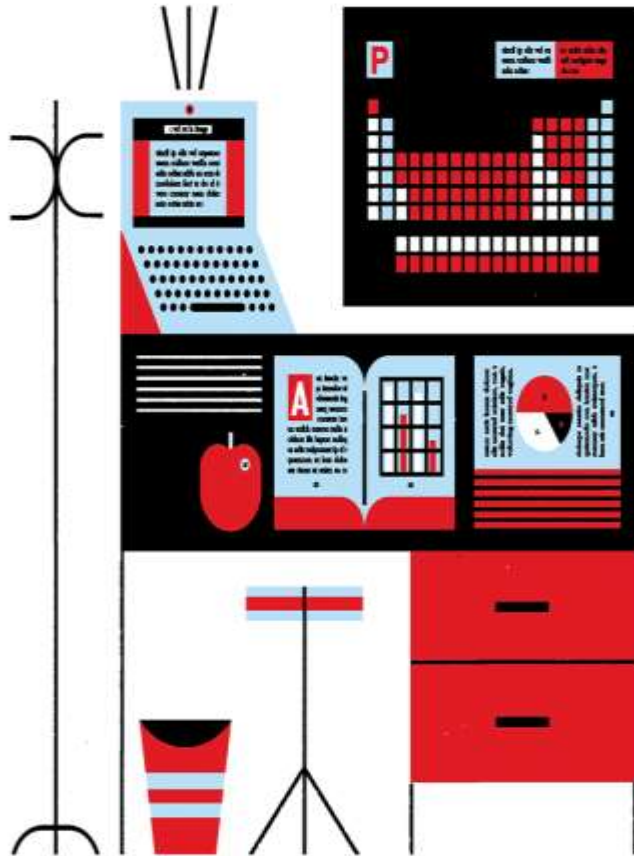
Subatomic Physics Program Updates

2022 Discovery Grants Competition

In light of the continuing uncertainty around the Covid-19 pandemic, and to ensure effective and timely delivery of the 2022 Discovery Grants competition, the peer review of applications, including Subatomic Physics, will take place by videoconference.

NSERC is committed to maintaining a peer review process of the highest quality, including fairness and consistency between evaluating committees and across competition years.

Contact: resgrant@nserc-crsng.gc.ca



Questions?

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