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Natural Sciences and Engineering
Research Council of Canada

Conseil de recherches en sciences
naturelles et en génie du Canada

Canada

2020 Competition

Report from the SAPES Co-Chair to the Community

Presented by: Thomas Grégoire, Carleton University

Congress of the Canadian Association of Physicists
June 8 - 12, 2020– Virtual Congress

Natural Sciences and Engineering Research Council of Canada
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Canada

Outline

- Subatomic Physics Evaluation Section (SAPES)
- Pre-competition Activities
- Large Project Day and Competition Week
- Rounds 1, 2, and 3
- Competition Financial Report
- Evolution of Awards
- Policy Matters
- NSERC News

Subatomic Physics Evaluation Section

2020 Competition

Name	Institution	Term	Expertise
Alex Buchel	The University of Western Ontario	2017-2020	Theoretical Particle Physics & Strings
Alison Lister	University of British Columbia	2019-2022	Exp. Energy Frontier, Dark Sector
Thomas Gregoire (Co-Chair)	Carleton University	2018-2021	Th. HEP/Energy Frontier
David Hornidge (Co-Chair)	Mount Allison University	2018-2022	Exp. IEP & NP
Charles Horowitz	Indiana University	2018-2021	Th. Nuclear Astrophysics
Paul Garrett	University of Guelph	2019-2023	Exp. Nuclear Physics
Kara Hoffman	University of Maryland	2019-2020	Exp. High Energy Physics
Tor Raubenheimer	Stanford Linear Accelerator Center / Stanford University	2016-2020	Experimental HEP & Accelerator R&D
Roxanne Springer	Duke University	2019-2022	Th. Nuclear Physics
Alexander Wright	Queen's University	2019-2022	Exp. Particle Astrophysics
Magnus Wolke	Uppsala University	2017-2020	Experimental IEP & NP
Georgia Karagiorgi	Columbia University	2019-2022	Exp. High Energy Physics, Neutrino Properties

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; attended SAP competition virtually in 2020.
- NSERC Staff
  - Shashini Jayaratne, Program Assistant
  - Catherine Harrison & Philip Bale, Program Officers
  - Emily Diepenveen, Team Leader
  - Elizabeth Boston, Director

The Subatomic Physics Evaluation Section

- Funded through an **independent envelope, with its suite of programs -- unique mechanism at NSERC**
- Evaluates applications to various Subatomic Physics programs
  - Individual and Project Discovery Grants
  - Research Tools and Instruments (RTI - Category 1, 2 or 3) Grants
  - Major Resources Support (MRS) Grants
- 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

Pre-Competition Activities

- Reviews by *ad hoc* or standing Committees
  - DEAP-3600 Nov. 22 – 23, Ottawa
  - nEXO Dec. 7 – 8, Ottawa
  - ATLAS-Canada Dec. 11 - 12, Toronto

Large Project Day

LPD 2020 was held March 1, 2020 in Ottawa:

- Participants received SAPES questions in advance
- This year's LPD invited participants were (by collaboration in alpha order):
  - DEAP-3600
  - nEXO
  - ALPHA
- Meetings with institutional representatives:

  CFI, **IPP**, **CINP**, **Perimeter**, **SNOLAB**, and **TRIUMF**.

Competition Week

- Competition week: **March 1 – March 6, 2020** in Ottawa
- Assessment of applications done in 2 rounds
  - Round 1: determine Merit Criteria ratings & recommend efficient budget for supported research activities
  - Round 2: reconsider funding recommendations to fit into available budget following consistent and fair re-assessment of *all* the applications

  Deliberations followed NSERC's policies and guidelines throughout all rounds of competition.

  NSERC's Director Elizabeth Boston, and Deputy Director Andrea Benoit were present for some deliberations.

Budget 2018 funds update

- Federal Budget 2018 included a historic investment in Discovery research.
- Last year an initial amount was allocated to the SAP envelope
- Finalized amounts are presented below

	2018/19	2019/20	2020/21	2021/2022	2022/2023	2023/24	2024/25	ongoing
Increase to envelope from Budget 2018	$0	$726,324	$1,898,635	$3,300,000	$3,776,309	$3,776,309	$3,776,309	$3,776,309
Total envelope	$24,933,457	$25,762,655	$27,305,886	$28,683,651	$29,159,960	$29,159,960	$29,159,960	$29,159,960

Competition Details

- 57 applications
- Total requested: $9.45M
- Available funds: $5.213M
- Projected average funding rate was 55%

Compare to:

2011	2012	2013	2014	2015	2016	2017	2018	2019
61%	69%	53%	52%	64%	56%	74%	69%	64%

Competition Budget

SUBATOMIC PHYSICS ENVELOPE MULTI-YEAR COMMITMENTS BY CATEGORY Beginning of Competition 2020					
	2020	2021	2022	2023	2024
RTI - COMMITTED	$138,357	$0	$0	$0	$0
RTI - 2020 Competition					
RTI - TOTAL	**$138,357**	**$0**	**$0**	**$0**	**$0**
THEORY - COMMITTED	$2,441,000	$1,706,000	$1,156,000	$707,000	$0
THEORY - 2020 Competition					
THEORY - TOTAL	**$2,441,000**	**$1,706,000**	**$1,156,000**	**$707,000**	**$0**
EXP OPS** - COMMITTED	$17,005,736	$8,505,507	$540,000	$271,000	$0
EXP OPS - 2020 Competition					
EXP OPS - TOTAL	**$17,005,736**	**$8,505,507**	**$540,000**	**$271,000**	**$0**
MRS - COMMITTED	$2,507,387	$1,773,715	$1,400,000	$1,400,000	
MRS - 2020 Competition					
MRS - TOTAL	**$2,507,387**	**$1,773,715**	**$1,400,000**	**$1,400,000**	**$0**
TOTAL - COMMITTED	$22,092,480	$11,985,222	$3,096,000	$2,378,000	$0
TOTAL - 2020 Competition	$0	$0	$0	$0	$0
GRAND TOTAL	**$22,092,480**	**$11,985,222**	**$3,096,000**	**$2,378,000**	**$0**
TOTAL ENVELOPE	**$27,305,886**	**$28,683,651**	**$29,159,960**	**$29,159,960**	**$29,159,960**
REIMBURSEMENT from past FY	**$0**	**$0**	**$0**	**$0**	**$0**
AVAILABLE	**$5,213,406**	**$16,698,429**	**$26,063,960**	**$26,781,960**	**$29,159,960**

Round 1

- Members in conflict of interest leave the room
- Presentation by the ***first internal*** **reviewer**
- Any new or different comments by the ***second internal*** **reviewer**
- Budget related comments by the ***third internal*** **reviewer** (only for applications requesting >$500k per year)
- Discussion by the **entire Section** (or sub-Section)
- Secret electronic voting – both on Merit Criteria and Recommended Budget

Any member or NSERC staff may “flag” an application.

Members are asked not to tally results to avoid biases.

Round 1

- Full Section deliberations
  - Project applications
  - Major RTI applications (Category 2 & 3)
  - Major MRS applications (> $500k/yr)
- Sub-Section deliberations (in parallel)
  - Individual (Experimental and Theory) applications
    - Quota of one (1) Discovery Accelerator Supplement (DAS) for the SAPES in 2019.
  - RTI-Category 1 & MRS applications
- Conclusion of Round 1
  - Re-discussed any flagged applications
  - NSERC personnel tally & present the budget

Budget Balancing – by Round

- Available Funds: $5.213M
- Requested: $9.445M

	Recommendations	Balance
Round 1	$7.402M	-$2.189M
Round 2	$5.598M	-$0.744K
Round 3	$5.331M	$0.107K

Additional funds of $225k became available at year-end. $118k was added back to the competition budget based on Round 3 recommendations

Quota of one (1) Discovery Accelerator Supplement (DAS) for the SAPES in 2020.

Multiyear Commitments at End of Competition

SUBATOMIC PHYSICS ENVELOPE
MULTI-YEAR COMMITMENTS BY CATEGORY
Post-2020 Comp

	2020	2021	2022	2023	2024
RTI - COMMITTED	$138,357	$0	$0	$0	$0
RTI - 2020 Competition	$485,006	$0	$0	$0	$0
RTI - TOTAL	**$623,363**	**$0**	**$0**	**$0**	**$0**
THEORY - COMMITTED	$2,231,000	$1,636,000	$1,156,000	$707,000	$0
THEORY - 2020 Competition	$857,000	$877,000	$877,000	$877,000	$877,000
THEORY - TOTAL	**$3,088,000**	**$2,513,000**	**$2,033,000**	**$1,584,000**	**$877,000**
EXP OPS** - COMMITTED	$16,990,736	$8,505,507	$540,000	$271,000	$0
EXP OPS - 2020 Competition	$3,682,000	$2,840,500	$2,378,500	$258,000	$258,000
EXP OPS - TOTAL	**$20,672,736**	**$11,346,007**	**$2,918,500**	**$529,000**	**$258,000**
MRS - COMMITTED	$2,507,387	$1,773,715	$1,400,000	$1,400,000	
MRS - 2020 Competition	$307,500	$301,500	$305,500	$75,000	$75,000
MRS - TOTAL	**$2,814,887**	**$2,075,215**	**$1,705,500**	**$1,475,000**	**$75,000**
TOTAL - COMMITTED	$21,867,480	$11,915,222	$3,096,000	$2,378,000	$0
TOTAL - 2020 Competition	$5,331,506	$4,019,000	$3,561,000	$1,210,000	$1,210,000
GRAND TOTAL	**$27,198,986**	**$15,934,222**	**$6,657,000**	**$3,588,000**	**$1,210,000**
TOTAL ENVELOPE	**$27,305,886**	**$28,683,651**	**$29,159,960**	**$29,159,960**	**$29,159,960**
REIMBURSEMENT from past FY	**$0**	**$106,900**	**$0**	**$0**	**$0**
AVAILABLE	**$106,900**	**$12,856,329**	**$22,502,960**	**$25,571,960**	**$27,949,960**

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

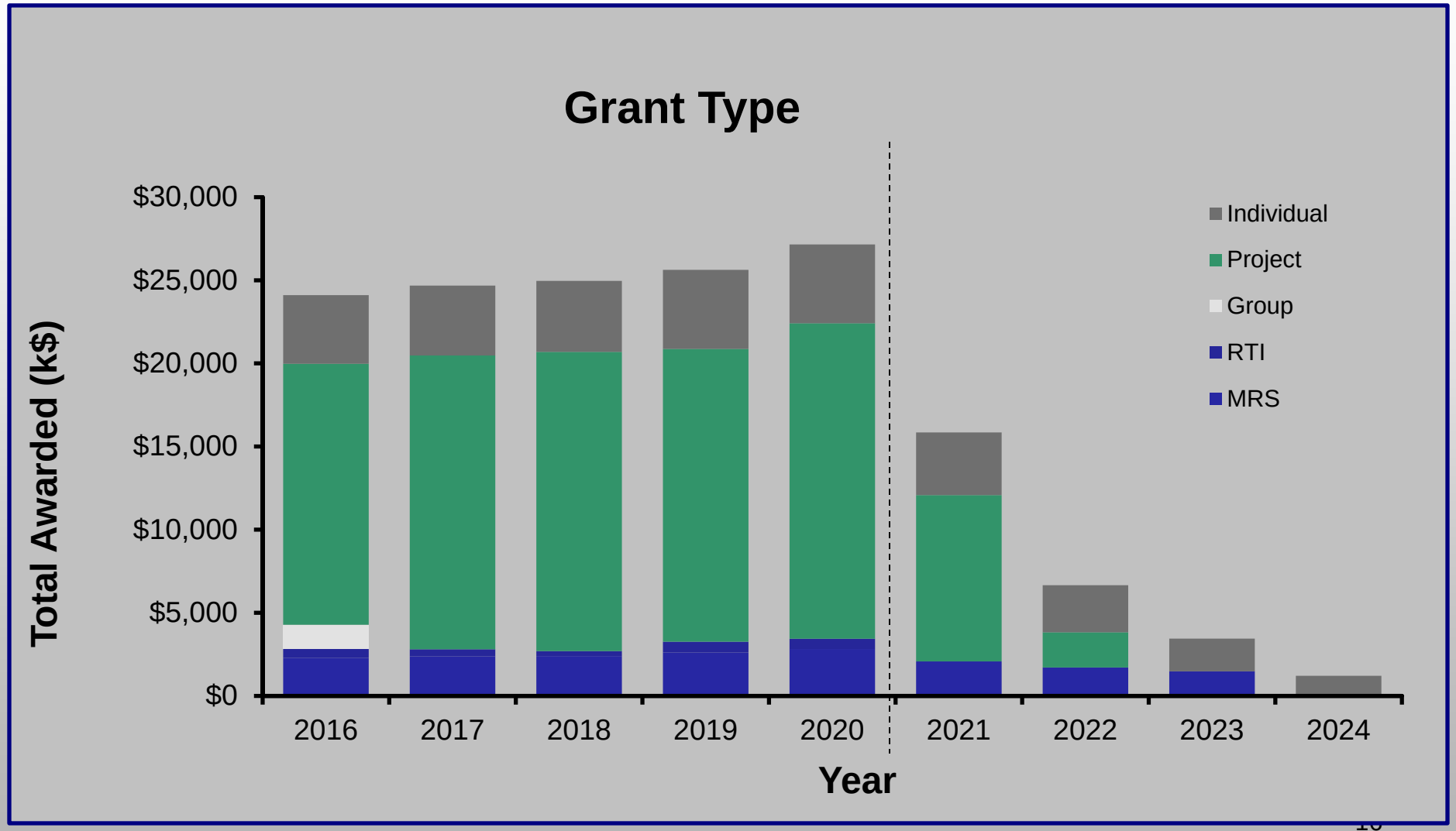
Share of Envelope at End of Competition

Comparison to Past Years

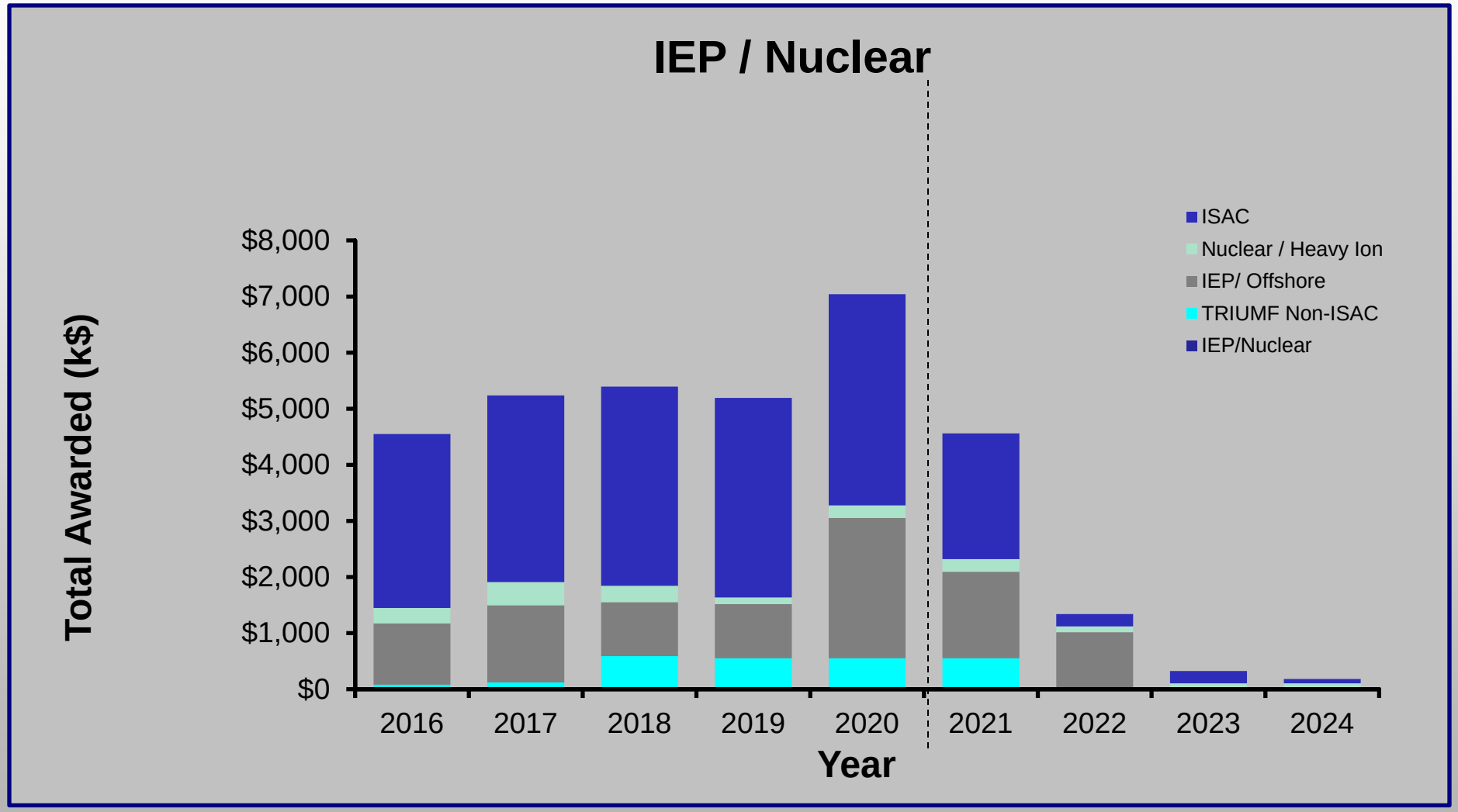
Subatomic Physics Evaluation Section
Evolution of Envelope's Shares

	2020	2019	2018	2017	2016	2015	2014	2013	2012
Theory	**11.35%**	**13%**	**13%**	**13%**	**14%**	15%	14%	14%	14%
RTI	**2%**	**3%**	**1%**	**2%**	**2%**	1%	5%	3%	3%
Total Research Ops	**86.35%**	**84%**	**86%**	**85%**	**84%**	84%	81%	83%	83%
Exp. Ops	76.01%	74%	77%	75%	74%	74%	71%	73%	72%
MRS	10.35%	10%	10%	10%	9%	10%	10%	10%	11%

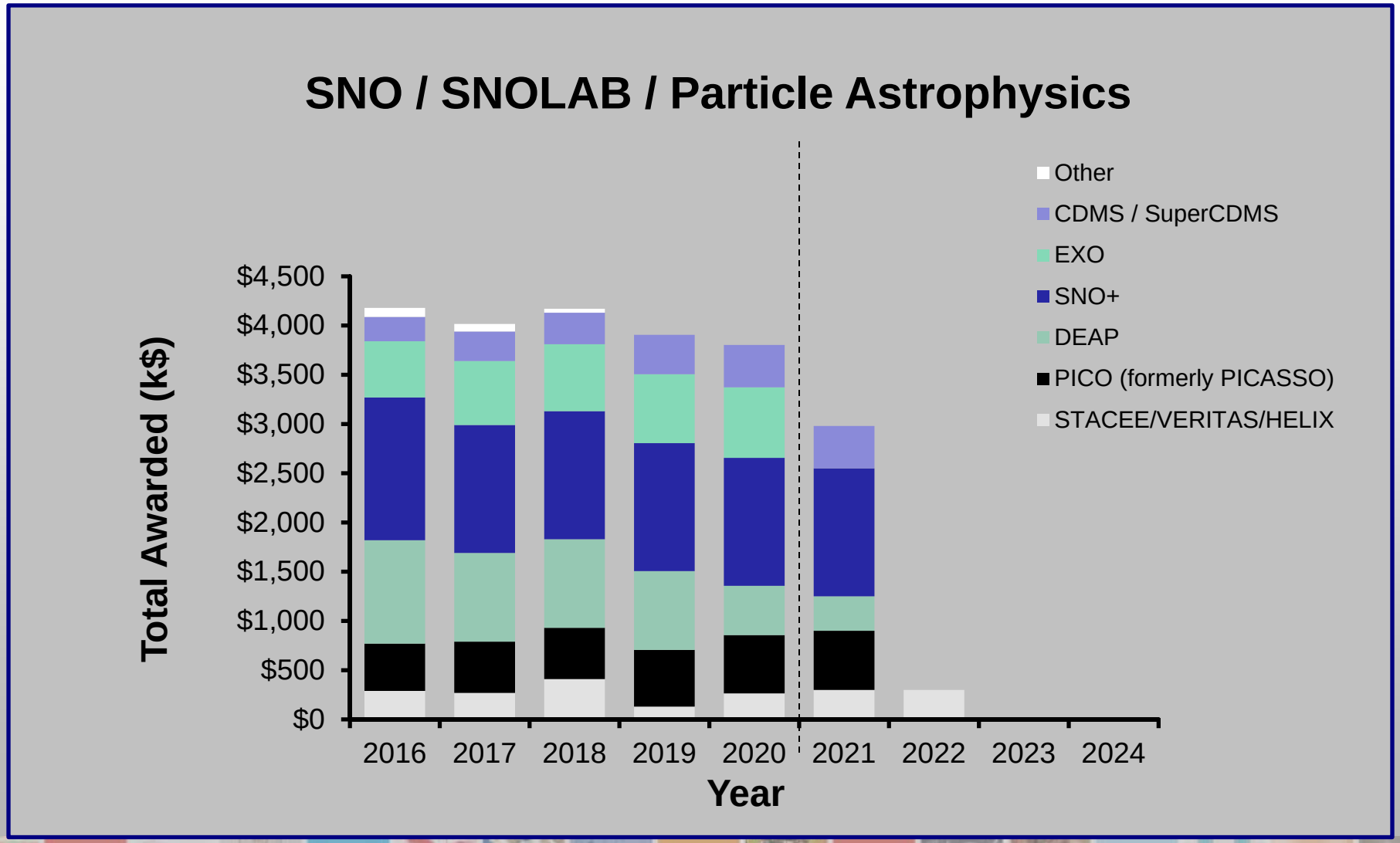
Evolution of SAPES Awards



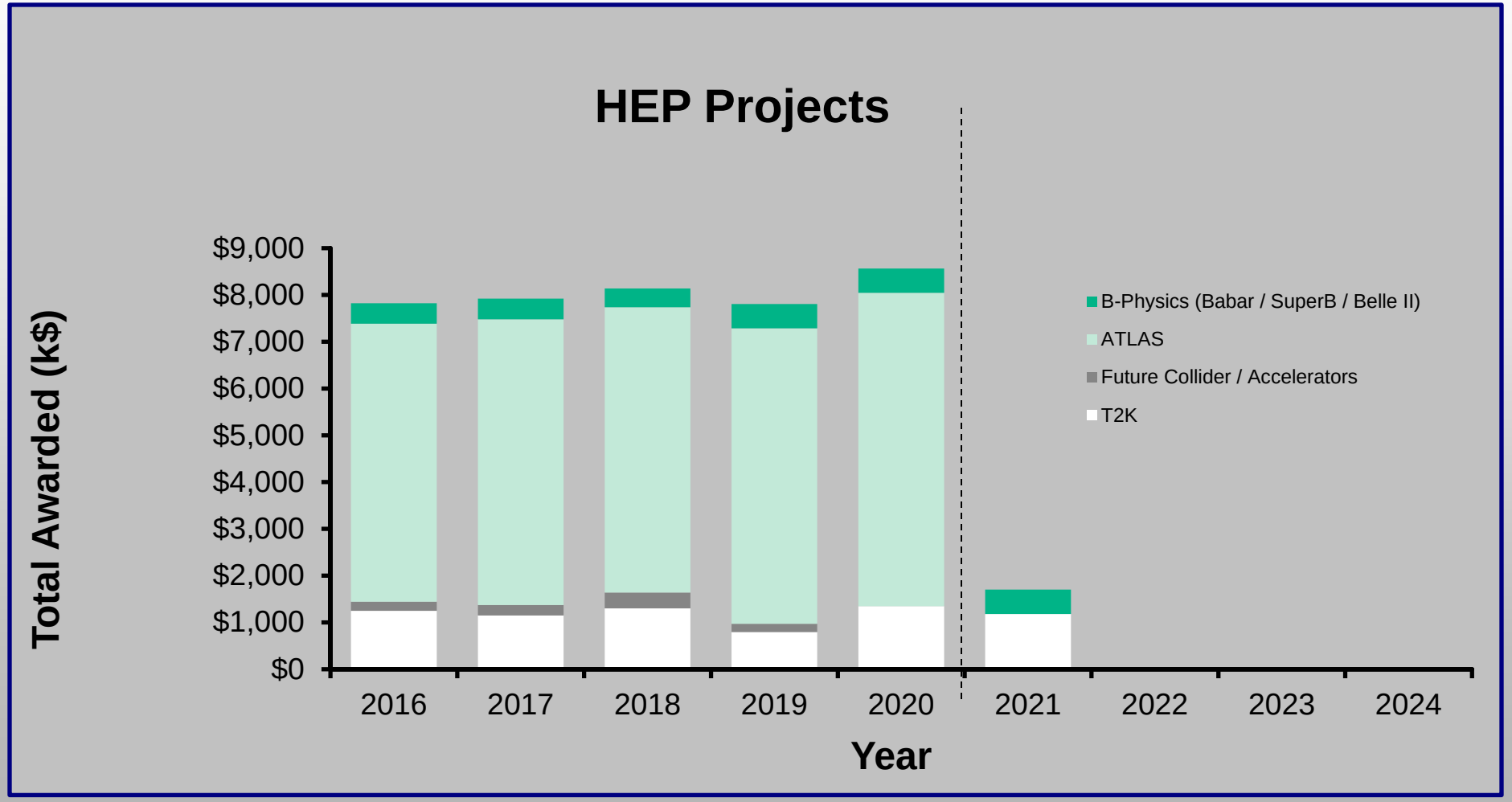
Evolution of SAPES Awards



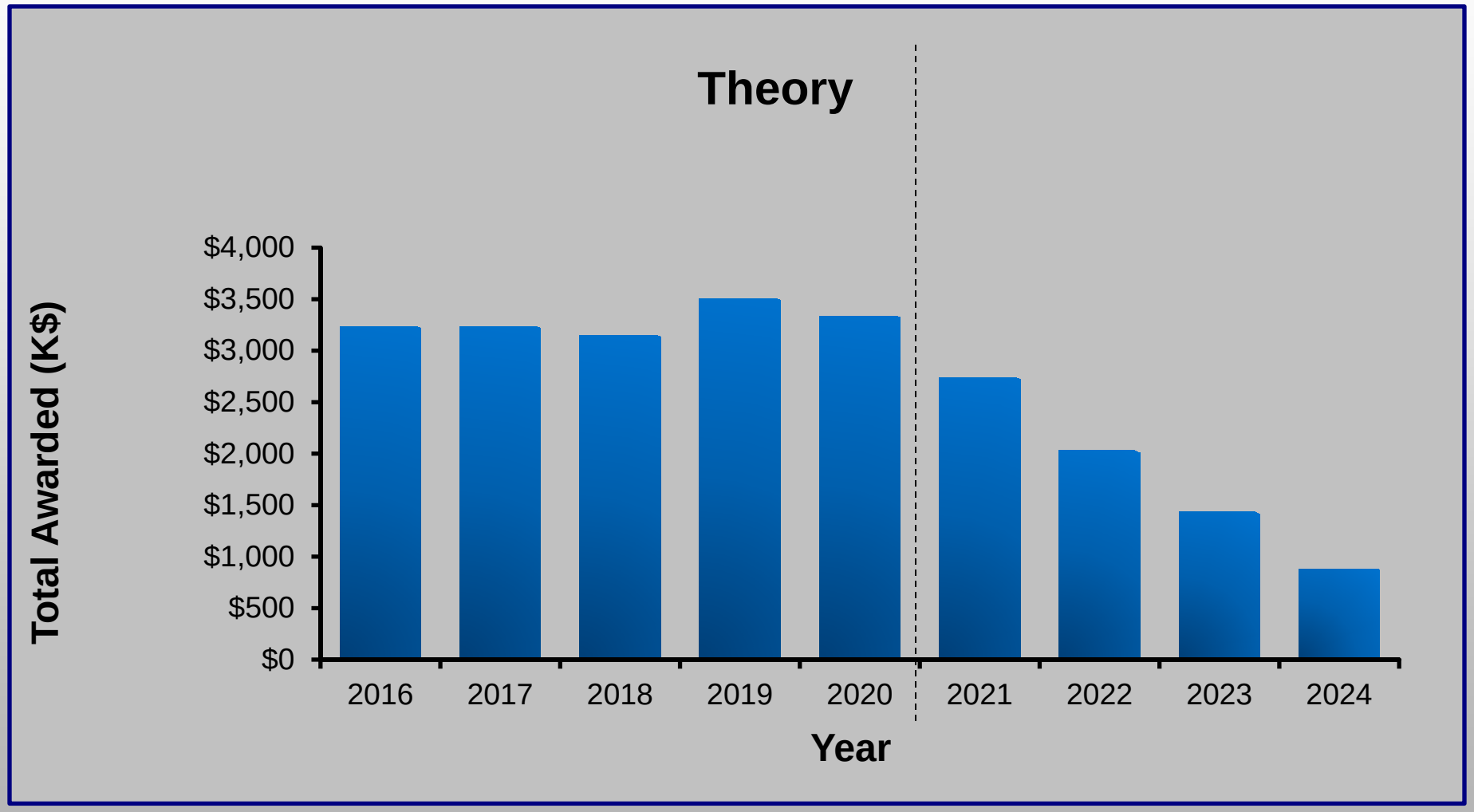
Evolution of SAPES Awards



Evolution of SAPES Awards



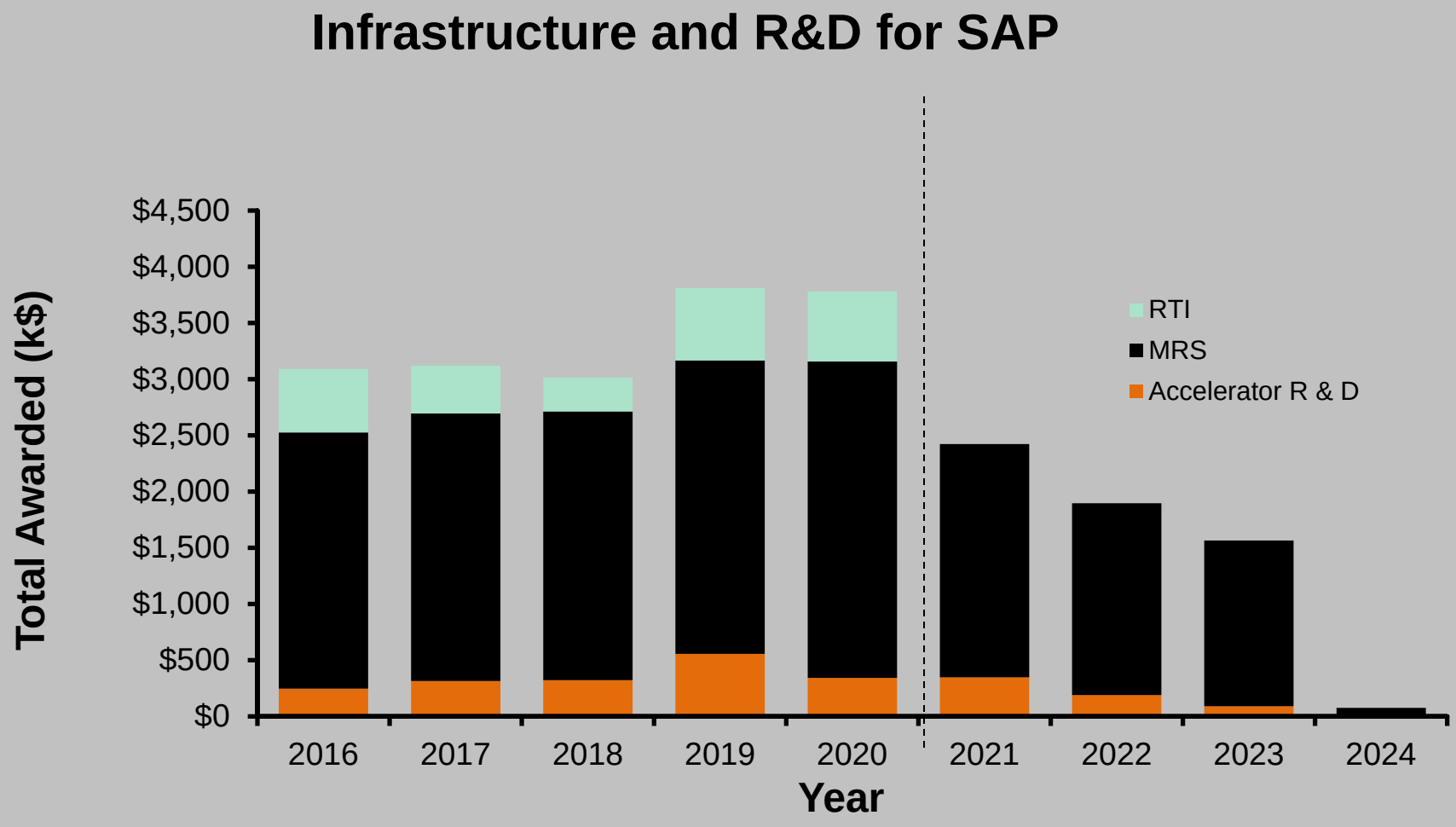
Evolution of SAPES Awards



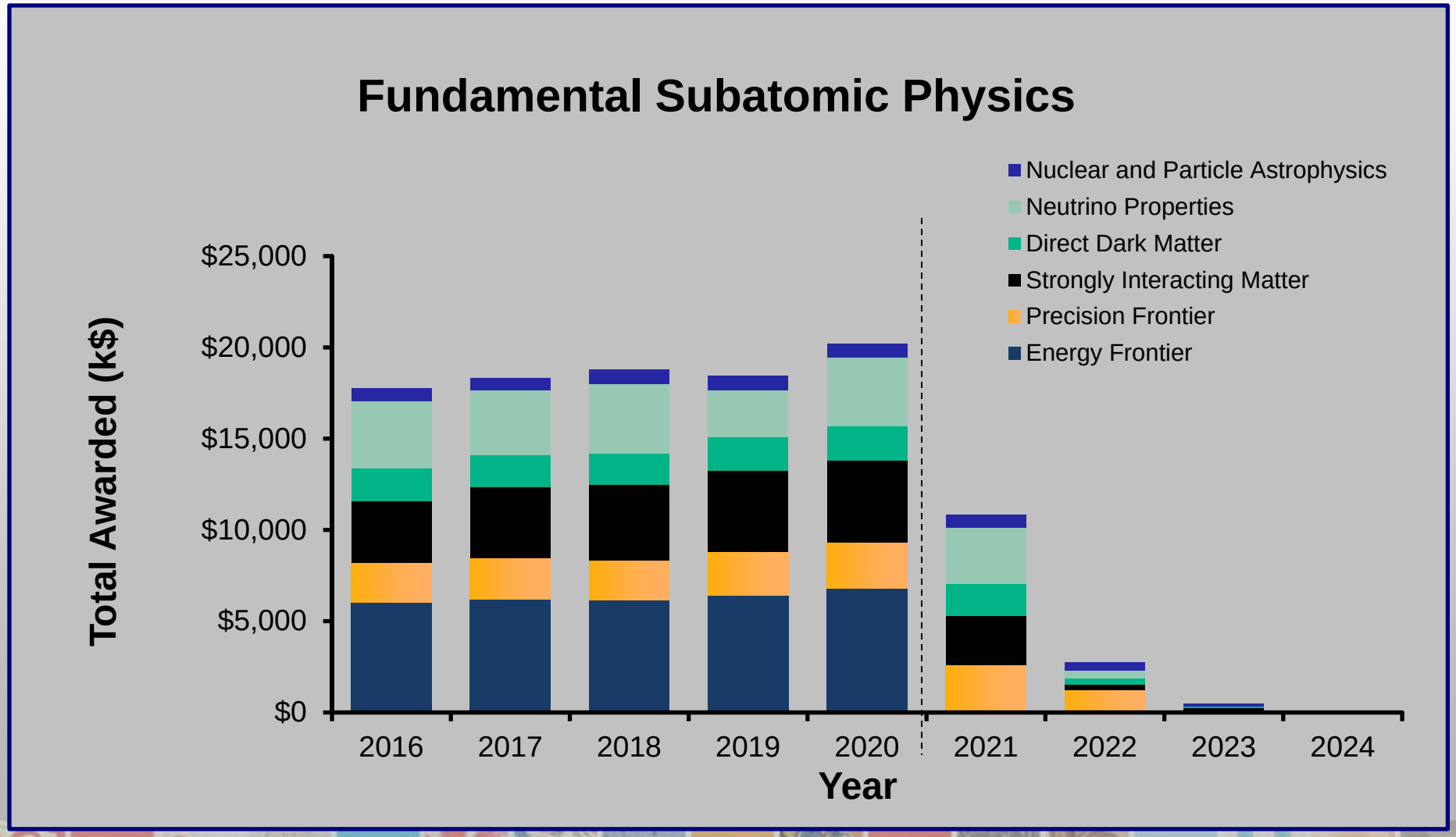
LRP 2016 Categories

- Infrastructure:
  - Accelerator R&D
  - RTI
  - MRS
- Fundamental Subatomic Physics:
  - Direct Dark Matter
  - Energy Frontier
  - Neutrino Properties
  - Nuclear and Particle Astrophysics
  - Precision Frontier
  - Strongly Interacting Matter
- Theory

Evolution of SAPES Awards



Evolution of SAPES Awards



Theory Data

	2014	2015	2016	2017	2018	2019	2020
Number of Theory applications received	13	19	13	13	12	14	17
Theory success rate	69.23%	94.74%	100.00%	100.00%	75.00%	78.57%	82.35%
% of applications submitted that were Theory	23.64%	32.20%	22.41%	25.49%	30.77%	23.73%	29.82%
% of amount requested from Theory	9.08%	9.98%	8.17%	7.18%	6.99%	7.28%	15.01%
% of amount awarded to Theory	9.05%	8.88%	8.29%	6.87%	4.83%	7.19%	16.07%
Theory funding rate	51.96%	57.56%	56.95%	55.64%	51.30%	63.51%	60.45%
Funding rate overall for that CY	52.16%	64.66%	56.06%	58.13%	74.17%	64.28%	56.45%
Theory Envelope Share (includes ongoing commitments)	14.02%	14.92%	14.01%	13.23%	12.62%	13.00%	11.35%

Policy Matters

- Discussions on the possibility of relaxing the conflict of interest rules.
- Discussions on the difficulty for accelerator physicists to get funding due to many of them not being in an academic position. This could affect the training of HQP in that field.
- Discussion on increasing the page limit for the HQP description (in part due to the new EDI element that is now required).
- Discussion on the meaning of the reported hours devoted to research (in relation for example to FTE).
- Discussion on the usefulness of having external reviews for large projects.
- Discussion on the CCV and its relation to the application itself. Applicants should keep their CCV up-to-date, and justify any contribution listed in the application that are older than 6 years.

NSERC News

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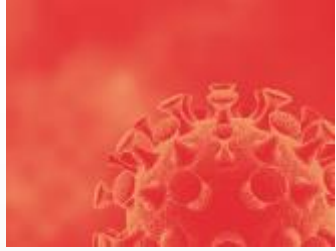
Program Updates in relation to COVID-19

- **Funding Opportunities – COVID-19 Research**
- **Grant Extensions (with and without funds) / Support for Students & Fellows**
- **Deadline Extensions**
- **Costs of Research**
- **Reporting**
- **Other Program Updates**

Details: https://www.nserc-crsng.gc.ca/Media-Media/NewsDetail-DetailNouvelles_eng.asp?ID=1139

COVID-19 Response
Program Updates

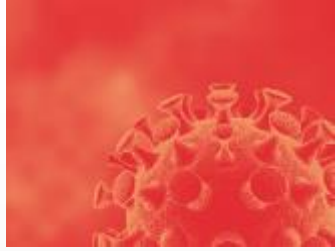


- **NSERC continues to monitor and make adjustments to program application deadlines and the reporting of due dates as necessary**

- **See website for regular updates:**
  - https://www.nserc-crsng.gc.ca/Media-Media/ProgramNewsDetails-NouvellesDesProgrammesDetails_eng.asp?ID=1139

COVID-19 Response

Program Updates



Discovery Grants one-year extension with funds

- All **active Discovery Grants** can elect to receive a one-year extension with funds at their current funding level.
- Eligible programs: Discovery Grants, Discovery Grants – Subatomic Physics (Individual, Project and Major Resources), Discovery Grants – Northern Research Supplements and Discovery Development Grants.
- **FAQ available** here: https://www.nserc-crsng.gc.ca/Professors-Professeurs/FAQ-FAQ/DG-SD_eng.asp
- **Contact:** resgrant@nserc-crsng.gc.ca

COVID-19 Response

Program Updates

NSERC / SSHRC Grants one-year extensions in time

- Academic institutions can immediately approve extensions requests up to 12 months for Agency grants with an end date between February 1, 2020 and March 31, 2021 inclusively
- Applies to all grants, regardless of whether they have received a previous time extension of any length for any reason
- Allows grantees to continue spending grant funds, and institutions to delay the processing of residual grant funds

COVID-19 Response

Questions

1. What are the most significant immediate challenges that your community is facing despite existing support?

2. Some groups are experiencing more significant negative impacts to their research and careers. These could vary by institution, region, research area, and the researcher's personal context.
   - How are these impacts varying within your community?
   - How can we ensure that COVID-19 related impacts are appropriately taken into account within our peer review processes?

3. What have been the impacts on support for the research community and HQP of the new measures taken by NSERC and the tri-agencies?

4. What further measures could NSERC consider over the coming year to support the research community and HQP in the short, medium and long-term?

Over to you…

- Questions?
- Comments?
- Advice?