

# **Subatomic Physics Grant Selection Committee (GSC-19) Annual Report**

**Karol Lang, Chair GSC-19  
The University of Texas at Austin  
April 2008**

## **I. Introduction**

This report summarizes the activities of the subatomic physics (SAP) Grant Selection Committee (GSC-19) during fiscal year 2007-08 and includes the results of the February 2008 competition. The report is provided for information to both NSERC's Committee on Grants and Scholarships (COGS) and the Canadian subatomic physics community. The format of the report largely follows the summaries from the previous years.

GSC-19 is unique among NSERC's Grant Selection Committees since it operates within an annual budget envelope. Such a mechanism is desired and often crucial for planning and stability of execution of large-scale and long-term projects. Individual and Group Discovery, Project, Research Tools and Instruments (RTI), and Major Resources Support (MRS) grant applications in subatomic physics are evaluated together by GSC-19. This process is essential in view of the complexity and inter-dependency of many proposals, which are often and ever more frequently parts of international programs and collaborations, involving many universities and national laboratories throughout the world. The budget envelope enables short- and long-term planning, and provides an effective mechanism to ensure adequate support of research enterprises according to the community's priorities, as established through the Long Range Plan (LRP). It also helps the GSC to keep a healthy balance between operations and capital investments. As in last year's competition, the Committee was aware of the scientific priorities identified in the 2006 LRP of the Canadian subatomic physics community, and the plan provided an important guidance throughout the Committee's discussions.

## **II. Update on the Envelope Funding**

The pressure on the Committee's funding envelope has been building for the last several years. It is clear that in the recent past, the substantial investments of the Canadian government in science and technology (e.g., CRC program, CFI), together with several other factors, have resulted in a fast growth of the number and *the quality* of the young faculty at Canadian universities in many fields, including subatomic physics. This increase has, in turn, been accompanied by a substantial growth of the number and quality of graduate students and other highly qualified personnel. Such a renewal and expansion are very welcome, and they demonstrate the health and vitality of the Canadian subatomic physics community. They pose, however, difficult funding challenges in a fixed budget scenario. This situation was thoroughly analyzed by the Long Range Planning Committee, with the conclusion that these trends cannot be maintained without a significant increase in the current NSERC's funding envelope.

The stresses on the envelope are coming from several growth areas, which were all identified as priorities in the 2006 LRP. This seems to be an excellent opportunity for the various governments, federal and provincial, to exploit these rare circumstances and to increase the impact and role of Canadian science in the world.

New funds were allocated to NSERC by the federal government in the last two budgets (2007 and 2008). In both instances, however, they were specifically provided in order to target clearly identified government priority areas. Consequently, no new funds were injected into the Discovery Grants program, including GSC-19's envelope.

In the fall of 2007, NSERC initiated, in collaboration with other funding partners, a process to provide a one-time interim and exceptional financial support towards the operating costs of two key major international initiatives. Without a short-term emergency support for the two initiatives, Canada's investments and international leadership in significant scientific endeavors would have been jeopardized, since the initiatives did not have sufficient funding to sustain their operations. The interim support is for fiscal years 2007-08 (retroactive to April 1, 2007) and 2008-09, and NSERC's share is based on an equal partnership with the CFI and the initiatives' universities and provinces. The funds used for this *ad hoc* support were made available *outside* the budget allocated to the Grant Selection Committees. SNOLAB was one of the two major international initiatives considered for this exceptional interim support.

An *ad hoc* International Review Committee was assembled, with the mandate to assess the two major international initiatives on the basis of the selection criteria of the Major Resources Support (MRS) program, and to determine the appropriate total operating budget of each initiative. Such a budget would permit an efficient yet restrained operation over the two fiscal years.

On the basis of the recommendation made by the *ad hoc* review Committee, SNOLAB is receiving financial support towards its operations for fiscal years 2007-08 and 2008-09. NSERC's share took into account the amount of \$1.275M that was awarded from

GSC-19's envelope during the 2007 competition. As a result of this interim support to SNOLAB for fiscal years 2007-08 and 2008-09, and taking into account the fact that the funds used for it were made available outside the budget allocated to the Grant Selection Committees, the following actions were taken:

- The reimbursement by GSC-19 of the amount of \$1.2M, which was forward-borrowed during the 2007 competition, is cancelled. The Committee was expected to reimburse the forward-borrowed amount over 4 years (starting from fiscal year 2008-09) through annual subtractions of \$300,000 from the envelope. There will be no such subtractions.
- An amount of \$75,000 was added to GSC-19's envelope for the 2008 competition.

On the basis of these actions, NSERC's support to SNOLAB during fiscal years 2007-08 and 2008-09 is entirely originating from outside GSC19's envelope.

### **III. Committee**

For this year, the membership of GSC-19 comprised 12 members and included 3 theorists. The new Committee members were Juha Äystö from the University of Jyväskylä (Finland), Sacha Davidson from the Institut de Physique Nucléaire de Lyon (Université Claude Bernard, France), Michel Lefebvre from the University of Victoria, Garth Huber from the University of Regina, and Kate Scholberg from Duke University. The Committee's membership is given below. The Committee members worked very well together. The atmosphere and collegiality among the members were excellent. This had an invaluable impact on the high quality of the deliberations that took place. The depth and quality of the discussions about the reviewed proposals were consistent throughout the competition and often impressive. The Chair would like to thank the members for their dedicated efforts in a highly professional atmosphere.

It is a pleasure also to thank the NSERC staff for their expert guidance and help in the months leading up to the competition and during the competition itself: Samir Boughaba, Team Leader, Michèle Beaudry, Program Officer, Kim Bonnet, Program Officer (who assisted the Committee just prior and during competition week, when Michèle was unable to participate), and Isabelle Blain, Vice-President, Research Grants & Scholarships, who joined the Committee for several important discussions. Jean-Claude Kieffer, Director, Institut National de la Recherche Scientifique - Énergie, Matériaux et Télécommunications, is NSERC's Group Chair for Physics. He attended most of our competition sessions, and provided helpful advice. Dr. Kieffer conveyed to the Chair that he was, once again this year, very impressed by the high level of the physics discussions during GSC-19's sessions and by the in-depth critical assessment of the applications and budgets during our deliberations. The Chair feels compelled to express additional special thanks to Samir Boughaba not only for his dedication and essential help but for providing a "backbone" of the GSC and helping to assure the high integrity of its operations. The Canadian SAP community is lucky to have Samir working for it!

<b>Name</b>	<b>Organization</b>	<b>Final Year</b>
Juha Äystö	University of Jyvaskyla	(2010)
Georges Azuelos	Université de Montréal - TRIUMF	(2008)
Cornelius Beusang	University of Richmond	(2009)
Sacha Davidson	Inst. de Physique Nucleaire de Lyon	(2010)
Roy Holt	Argonne National Laboratory	(2008)
Garth Huber	University of Regina	(2010)
Byron Jennings	TRIUMF	(2008)
Greg Landsberg	Brown University	(2009)
Karol Lang ( <i>Chair</i> )	University of Texas at Austin	(2008)
Michel Lefebvre	University of Victoria	(2010)
Kate Scholberg	Duke University	(2010)
Howard Trottier	Simon Fraser University	(2009)

#### **IV. Policy Meeting and Site Visits**

Each year, the Committee launches its operations at a one-day policy meeting in which news from NSERC, including a detailed review of the budget, is communicated to the members. This is also a critical meeting for the new members to familiarize themselves with NSERC's and the Committee's operating procedures, and be informed of the process leading to competition week. This year, the policy meeting was held in Halifax on October 22, 2007. All members attended; one did through teleconference.

Following this meeting, it is a tradition for GSC-19 to visit Canadian institutions with subatomic physics research programs on a 3-year rotation basis. The visits are conducted for informational purposes only and are not a part of the grant evaluation process. They provide opportunities to communicate information about NSERC and the review process to researchers, while the Committee members hear presentations about the researchers' activities and learn first-hand about their infrastructure and environment. The learning process that accompanies the visits is particularly important considering that 7 out of 12 members of GSC-19 were affiliated this year with non-Canadian research institutions.

The Committee first visited St. Mary's University on October 23<sup>rd</sup>, and it heard talks about research activities at Saint Mary's University, Acadia University, and Mount Allison University. The next day, the Committee visited the Université de Montréal and McGill University, where researchers from Concordia University also presented their research programs. On October 25<sup>th</sup> and 26<sup>th</sup>, the Committee visited Carleton University and the University of Toronto, respectively. At the latter, faculty from McMaster University and the University of Guelph made presentations. On the last day of the trip, the Committee visited SNOLAB, where members toured the surface building, as well as the old and new parts of the underground infrastructure, and were shown some of the already on-going experiments.

At each visited institution, the meeting first began with presentations by the Chair, who summarized the discussions at the policy meeting and provided information on the evaluation process of grant applications. Michèle Beaudry then provided the audience with recent news from NSERC. Subsequently, the Committee met with the local administration, typically at the level of the Department Chair, Vice-President for Research, or Dean for Research, and was allotted time to interact with students and post-docs involved in NSERC-supported research. These visits provided the Committee with an extremely valuable context about research realities at each institution and allowed many informal interactions with the entire spectrum of personnel. Although necessarily fast-paced and intense, these visits are a very precious source of information about the research environment in which Canadian researchers operate and the local support or constraints they may have. An informal summary on each visit was prepared by Canadian members of the Committee. These reports are available for future Committees to consult. Since these visits are informational and not, in any way, used as part of any grant evaluation, these summaries are for internal use only.

## **V. Pre-Review Process**

When the Form 180s and Form 181s (for MRS) are received, each application is assigned to first and second internal reviewers, who are Committee members with the most appropriate expertise. In the case of Form 180s, the first reviewer is then required to recommend five external referees for each of his/her assigned applications. Up to two of the external referees could be chosen from the list of suggested referees on the Form 180. It is in the applicant's interest to suggest referees who are not in conflict of interest according to NSERC's guidelines.

## **VI. Chairs' Meeting**

The annual Chairs' meeting was held on November 25, 2007 in Ottawa. In this meeting, each GSC Chair reviews all of the applications to his/her GSC to ensure that (i) each application has a suitable set of external reviewers and (ii) each application is being reviewed by the most appropriate GSC. There are usually only a few applications that fall at the boundary between GSC-19 and other Committees. In any such case, a meeting involving the Chairs of GSC-19 and the alternate GSC, the Group Chair(s), and the NSERC Team Leader(s) and Program Officer(s) is convened. A decision on which GSC should review the application is made based on an assessment of which Committee has the most relevant expertise. This year, no application moved into or out of GSC-19.

As usual, various other tasks were carried out during the meeting. The list of external referees was finalized and the list of grant applications needing a site visit was established. The Chair identified the projects to be invited to Large Project Day and organized the preliminary agenda for it.

## **VII. Review Committees**

Several large grant applications for this year's competition, as well as on-going awards, requested site visits to be conducted prior to the competition, in the fall of 2007 and in early January 2008. The reviews were carried out by *ad hoc* or standing Committees of experts, and typically lasted one to two-and-a-half days to allow more in-depth evaluations of the projects than what is possible by the review of the written applications. Full reports with recommendations, including budget recommendations, were prepared for the GSC. The reports, without the budget recommendations, were sent by NSERC to the project Collaborations prior to Large Project Day. The reviewed grant applications and on-going awards were ATLAS (annual overall review, plus two RTI grant applications), DEAP/CLEAN, IPP, PICASSO, and SNO+. There was also a review of T2K by a Technical Review Committee, which assessed the progress made by this project, and provided a recommendation to the GSC with respect to the release of the 3<sup>rd</sup> year instalments (2006 Project and RTI awards). The GSC Chair attended most reviews as an *ex officio* member, except for the SNO+ and T2K reviews, where he was represented by Howard Trottier and Byron Jennings, respectively. GSC members also participated in other reviews as full members: Karol Lang for PICASSO (Byron Jennings acted as *ex officio* in this case), Howard Trottier for ATLAS and T2K, and Byron Jennings for IPP. The Chair also attended the meeting of the Advisory Committee on TRIUMF (ACOT) in November 2007. He will be attending the ACOT meeting in May 2008.

## **VIII. Large Project Day**

It has proved useful to devote one day prior to the beginning of the competition to presentations by the Principal Investigators of projects requesting grants of an average of \$500K per year or more. It is also now customary to meet with management representatives from IPP, the Perimeter Institute, SNOLAB, and TRIUMF. This year was special for IPP since it submitted an MRS grant application to fund its operations; its usual general presentation needed to be distinct from that related to its proposal. Large Project Day was held on February 3, 2008, in Ottawa. The agenda is attached as Appendix 1.

The day began with *in camera* presentations by Tony Noble (SNOLAB's Director), Robert Myers (Perimeter Institute's Interim Scientific Director), Jean-Michel Poutissou (TRIUMF's Scientific Director), and William Trischuk (IPP's Director). They provided the Committee with the perspective of the communities their organizations serve. Then, Principal Investigators made presentations and answered questions previously submitted by the GSC. This was done in an open session that was attended by about 30 members of the community. The only exception was the presentation by IPP about its grant request, which was also made *in camera*. Besides IPP, the invited projects were ATLAS (2 presentations, one for each RTI grant request), DEAP/CLEAN, PICASSO, SNO+, and T2K.

At the end of the day, the Committee had an *in camera* session with Isabelle Blain who updated the Committee on the on-going International Review of the Discovery Grants program, as well as the GSC Structure Review. On the basis of these reviews, changes and adjustments to the current GSC structure and operating mode may be undertaken in the near future to ensure that the peer review process continues to effectively support a broad base of high quality research, while accommodating the evolution of various research areas, the increase in interdisciplinary research, and the growing number of applications. NSERC is well aware of the specificities of the subatomic physics community and GSC-19. It is well recognized at the agency that GSC-19's funding mechanism and operations are successful in addressing the community's needs in a very efficient manner. GSC-19 will continue to be funded through an envelope mechanism that will allow planning and a global support to the community.

### **IX. Beginning of the Competition**

The funds available to the Committee at the beginning of the competition are shown in Table 1. The base budget from year to year maintains a flat profile. This year, there were no *new* funds available for first-time applicants to the Discovery Grants program. Moreover, last year saw the final increment related to the 2002 Reallocations Exercise. The total addition to the envelope, as a result of this exercise, amounted to \$459K, and it is permanently added to the base budget. Similarly, the \$64K added to the envelope in 2007 as a result of an increase in the budget of the main Major Resources Support program are permanently part of the envelope.

An amount of \$300K was subtracted from the envelope as part of the reimbursement to NSERC of the \$1.5M payment towards ATLAS' Cost-to-Completion in 2005. Furthermore, as indicated in Section II, \$75K added to the envelope as a result of the interim support provided to SNOLAB from outside the envelope. An RTI adjustment of \$81K was also made to the envelope.

The carry forward from the 2007 competition increased from \$13K (reported in last year's report) to \$103K due to a return of funds to the envelop and post-competition adjustments of instalments.

After subtracting the \$15.272M committed in previous competitions, \$7.497M was available for the 2008 competition.

This year, GSC-19 received 65 applications. These proposals requested a total of \$11.304M for fiscal year 2008-09. Consequently, the projected average funding rate for the competition was 66%. For comparison, the funding rates for the years 2002 to 2007 were 79%, 58%, 55%, 58%, 60%, and 55% (when one excludes SNOLAB's request and award in 2007, since SNOLAB's support has been taken from outside the envelope for fiscal years 2007-08 and 2008-09), respectively. The evolution of GSC-19's funding rate since the 2002 competition is presented in Figure 1.

2008 Competition - Subatomic Physics Envelope Budget								
Beginning of Competition								
<i>(millions of dollars)</i>								
Budget Item	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
<b>Base Budget</b>	20.665	20.665	20.665	20.665	20.665	20.665	20.665	20.665
<b>Cumulative Permanent Additions:</b>								
New Applicants <sup>1</sup>	1.250	1.505	1.622	1.622	1.622	1.622	1.622	1.622
Reallocations <sup>2</sup>	0.287	0.373	0.459	0.459	0.459	0.459	0.459	0.459
Transfers <sup>3</sup>	0.000	0.000	0.064	0.064	0.064	0.064	0.064	0.064
<b>Temporary Transfers:</b>								
ATLAS Cost-to-Completion	0.750	0.075	0.075	-0.300	-0.300	-0.300	0.000	0.000
SRO Contribution	-0.137	-0.137	0.000	0.000	0.000	0.000	0.000	0.000
From other GSCs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Forward-Borrow	0.000	0.000	1.200 <sup>4</sup>	0.000	0.000	0.000	0.000	0.000
Miscellaneous				0.075 <sup>5</sup>				
<b>Total Fiscal Year</b>	22.933	22.481	24.211	22.585	22.510	22.510	22.810	22.810
<b>Actual Spending</b>	22.517	22.433	24.572					
<b>Carry-forward<sup>6</sup></b>	0.416	0.464	0.103					
<b>Commitments</b>				-15.272	-10.736	-5.414	-3.412	
<b>RTI budget adjustment<sup>7</sup></b>		0.118	0.126	0.081				
<b>Available for Competition</b>				<b>7.497</b>				

<sup>1</sup> There is no allocation of new funds for new applicants for the 2008 competition.

<sup>2</sup> FY 2007/08 is the last year for the 2002 reallocations exercise.

<sup>3</sup> \$64,000 were added to the envelope as a result of the \$1M increase to the general MRS budget (6.4%).

<sup>4</sup> The reimbursement of the forward-borrowed amount of \$1.2M in FY2007-08 is cancelled. This is the result of NSERC's decision to exceptionally contribute to the interim support of SNOLAB's operation for FY2007-08 and FY2008-09, alongside funding partners.

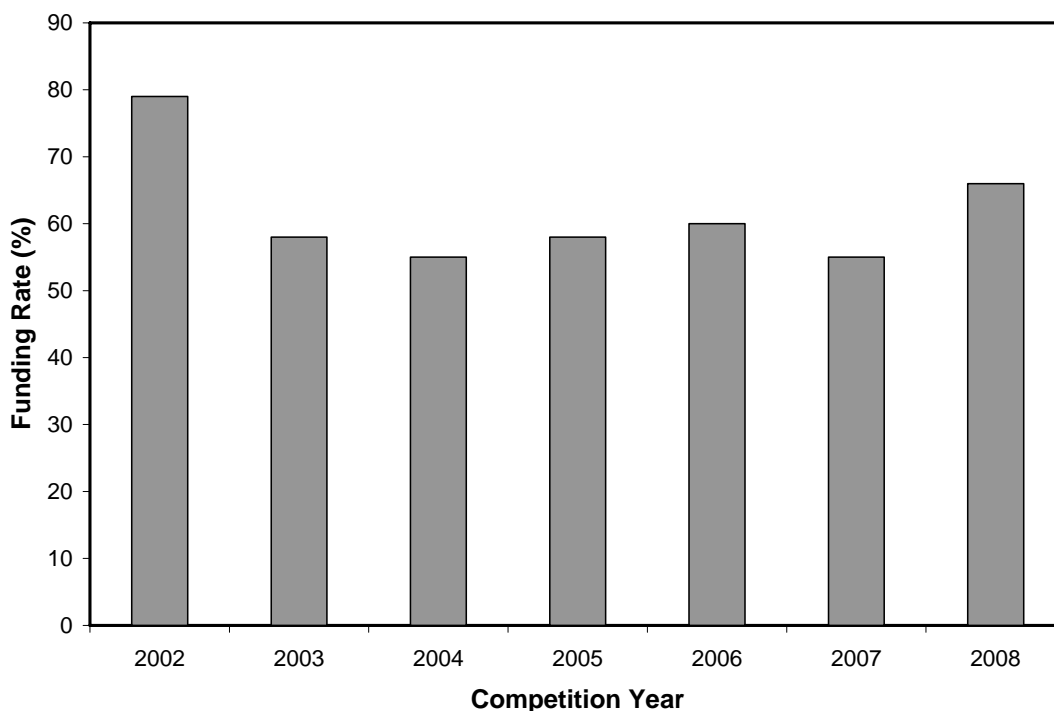
<sup>5</sup> This payment to the envelope relates to the fact that, following an ad hoc review alongside funding partners, NSERC is exceptionally contributing to the interim support of SNOLAB's operation from outside the envelope for FY2007-08 and FY2008-09. The entirety of the 2007 SAPMR grant to SNOLAB (\$1.275M) was paid back to the envelope (cancellation of the 4 payments of \$300K/year from the envelope to reimburse the forward-borrowed amount of \$1.2M, plus a one-time contribution of \$75K to the envelope in 2008).

<sup>6</sup> For each year, the carry forward is calculated by subtracting the actual spending from the total fiscal year allotment, then adding the previous year's carry-forward amount.

<sup>7</sup> The RTI budget adjustment is made using year-end funds.

*Table 1. Overall budget available at the beginning of the 2008 competition*





*Figure 1: Evolution of GSC-19's funding rate since the 2002 competition. The 2007 funding rate was calculated without SNOLAB's request and award since SNOLAB's support has been taken from outside the envelope for FY2007-08 and FY2008-09.*

## **X. The 2008 Competition**

The competition took place over a period of five days, from February 4 to 8, 2008, in Ottawa. The session started with the budget discussion, as presented above. Members agreed that, despite very welcome news regarding the support to SNOLAB (Section II), the envelope was still facing a pressure similar to that of previous competitions. The Committee then started Round 1 of the competition, and proceeded with the review of the applications in an order previously set by the Chair.

The format of the discussions strictly followed NSERC's guidelines and the Committee's internal procedures. In the fall of 2007, at least two Committee members were assigned to conduct an *internal* review of each application. During competition week, for any application, the first internal reviewer presented all aspects of the proposal and made his/her recommendations (rating, funding, duration). This was then followed by additional comments and/or a presentation from the second internal reviewer, who also made recommendations. These in-depth reviews were carried out independently by the two internal reviewers, and took into account the reports received from *external* reviewers, if available, as well as site visit reports, when applicable. Each application was then thoroughly discussed by the entire Committee. At the end of the discussion,

members were asked to rate the application against NSERC's selection criteria: (i) excellence of the proposal, (ii) excellence of the researcher(s), (iii) contribution to the training of HQP, and (iv) need for funds. Taking the results of the ratings into account, the Committee then decided whether to recommend funding the application, the level of funding, and the funding duration. The ratings and funding recommendations were determined by secret electronic voting. The median vote was selected as the final recommendation of the Committee with respect to the amount. Members in conflict with any particular application left the meeting room before it was discussed, and were never informed, even by the end of the competition, of the final result.

Once the Committee completed the review of the experimental individual, Group, Project and major RTI (Categories 2 and 3, i.e., larger than \$150K in total) and MRS (larger than \$500K per year) proposals, it was divided into two sub-committees: a theory one and an RTI/MRS one. The theory sub-committee reviewed all the theory individual grant applications. The RTI/MRS sub-committee reviewed all the RTI - Category 1 (smaller than \$150K in total) grant requests, as well as the MRS grant applications requesting an average of less than \$500K per year.

As usual, it was strictly forbidden for the GSC members to keep a cumulative total of the recommended awards in order not to bias the review of applications discussed towards the end, and to assure that all applications were treated equally. This was facilitated by the various conflicts of interest that required members to leave the room and by the split into two sub-committees. A few applications were flagged as the Committee proceeded through the agenda and were re-discussed at the end of Round 1. Applications could be flagged by any member, if he/she felt that some aspects of the discussion or the recommendation had been inadequately resolved.

The Round 1 deliberations concluded in the morning of February 7, as scheduled. At this stage, NSERC's personnel made a presentation to the Committee on the budget status, taking into account the sum of the recommended awards for all the applications. The result was a sum of \$7.474M, to be compared to a total of \$7.497M that was available to the Committee. The Committee had *under spent* its budget by \$23K. This close balancing of the budget was unexpected by the end of Round 1, and it was an unprecedented situation, to the best of the Committee's knowledge.

Taking this situation into account, the Committee proceeded with Round 2 by first discussing the overall assessment process in Round 1. The members concluded that the review process had been carried out in a consistent manner and on the basis of NSERC's selection criteria. Moreover, they felt that, given the budgetary pressure faced by the envelope, their recommendations were derived in the best and most equitable way that the Committee could accomplish. On this basis, the Committee decided to maintain its funding recommendations as is. It also agreed to further discuss those applications for which no funding was recommended, but which were flagged during Round 1 for additional discussion should funds become available at the end of the competition. Following this further discussion, the Committee recommended to carry forward the unspent \$23K to next year's competition.

In Round 3, the Committee reviewed the distribution of the 2008 budget amongst the theory grants (14.9%), the experimental operating grants (69.2%, including MRS), and the equipment grants (15.5%), as well as the multiyear trends. The discussion of these issues concluded with the assessment that the results of the 2008 competition fall within accepted guidelines and follow general recommendations of the Long Range Planning Committee.

## **XI. End of Competition Results**

At the end of the fiscal year, adjustments were made to the on-going commitments of the Committee to reflect deferral of instalments related to individual grants, as well as an update to an individual grant linked to a University Faculty Award. These updates affected the budget totals in fiscal years 2007-08, 2008-09, and 2009-10. Consequently, the carry forward to the 2009 competition currently amounts to \$102K.

Taking this into account, the Committee's final multiyear budget levels are shown in Table 2, while the multiyear breakdown of theory, experimental operating, MRS, and capital allocations is given in Table 3.

Support towards new equipment amounted to \$969K this year, bringing the total share for equipment to about \$3.5M. Taking into account next year's commitments (\$1.1M), there will be adequate funds for new equipment during next year's competition, on the basis of an annual commitment level for equipment of  $\$4.0 \pm 0.5M$ .

## **XII. Recommendations to NSERC's MRS and DAS Committees**

In this year's competition, GSC-19 was asked to provide reviews on two grant applications to the main MRS program. These proposals were partially related to the activities of the subatomic physics community, and the Committee had to provide an expert input. The Committee discussed these two applications at the end of Round 1. Written recommendations were prepared and provided to the MRS Grant Selection Committee (GSC-1051), whose competition was held in March.

This is the second year of the Discovery Accelerator Supplements (DAS) program. The objective of the latter is to provide substantial and timely resources to outstanding researchers who have a well-established research program, and who show strong potential to become international leaders in their respective area of research. These additional resources will be allocated when progress of the incumbent's research program is held back by insufficient funding. For this year's competition, GSC-19 could put forward three candidates to the DAS program (in 2007, only one was allowed). At the end of the discussion on any individual Discovery grant application, the Program Officer asked if any member wanted to recommend the applicant for the DAS program. The potential candidates were discussed at the end of Round 3, and the three candidates were selected through general consensus and a vote by show of hands. They represent a mix of experimentalist(s) and theorist(s).

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End of Competition (Last Update: April 1, 2008)								
<i>(millions of dollars)</i>								
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Transfers <sup>3</sup>	0.000	0.000	0.064	0.064	0.064	0.064	0.064	0.064
<b>Temporary Transfers:</b>								
ATLAS Cost-to-Completion	0.750	0.075	0.075	-0.300	-0.300	-0.300	0.000	0.000
SRO Contribution	-0.137	-0.137	0.000	0.000	0.000	0.000	0.000	0.000
From other GSCs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Forward-Borrow	0.000	0.000	1.200 <sup>4</sup>	0.000	0.000	0.000	0.000	0.000
Miscellaneous				0.075 <sup>5</sup>				
<b>Total Fiscal Year</b>	22.933	22.481	24.211	<b>22.666</b>	22.510	22.510	22.810	22.810
<b>Actual Spending</b>	22.517	22.433	24.572	<b>22.667</b>				
<b>Carry-forward<sup>6</sup></b>	0.416	0.464	0.103	<b>0.102</b>				
<b>Commitments</b>								
<b>RTI budget adjustment<sup>7</sup></b>		0.118	0.126	0.081	-10.815	-5.414	-3.412	-2.329
<b>Available for Competition</b>								

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<sup>7</sup> The RTI budget adjustment is made using year-end funds.

Table 2. Multi-year budget summary at the end of the 2008 competition

<b>2008 COMPETITION MULTI-YEAR COMMITMENTS BY CATEGORY</b>					
<b>End of Competition (Last Update: April 1, 2008)</b>					
	2008	2009	2010	2011	2012
EQ - COMMITTED <sup>1</sup>	\$2,612,844	\$800,000	\$300,000		
EQ - NEW	\$969,162	\$316,000	\$474,000	\$474,000	
<b>EQ - TOTAL</b>	<b>\$3,582,006</b>	<b>\$1,116,000</b>	<b>\$774,000</b>		
THEORY-COMMITTED	\$2,576,000	\$1,943,000	\$1,029,000	\$532,000	
THEORY - NEW	\$850,000	\$842,000	\$827,000	\$575,000	\$575,000
<b>THEORY - TOTAL</b>	<b>\$3,426,000</b>	<b>\$2,785,000</b>	<b>\$1,856,000</b>	<b>\$1,107,000</b>	<b>\$575,000</b>
EXP OPS <sup>2</sup> - COMMITTED	\$9,699,750	\$2,127,500			
EXP OPS - NEW	\$3,790,985	\$2,772,000	\$891,000		
<b>EXP OPS - TOTAL</b>	<b>\$13,490,735</b>	<b>\$4,899,500</b>	<b>\$891,000</b>		
MFA/MRS - COMMITTED	\$604,500	\$323,000	\$148,000	\$148,000	
MRS - NEW	\$1,863,895	\$1,971,000	\$2,045,340	\$1,683,195	\$1,753,932
<b>MRS/MFA - TOTAL</b>	<b>\$2,468,395</b>	<b>\$2,294,000</b>	<b>\$2,193,340</b>	<b>\$1,831,195</b>	<b>\$1,753,932</b>
<b>TOTAL - COMMITTED</b>	<b>\$15,493,094</b>	<b>\$5,193,500</b>	<b>\$1,477,000</b>	<b>\$680,000</b>	
<b>TOTAL - NEW</b>	<b>\$7,474,042</b>	<b>\$5,901,000</b>	<b>\$4,237,340</b>	<b>\$2,732,195</b>	<b>\$2,328,932</b>
<b>GRAND TOTAL</b>	<b>\$22,967,136</b>	<b>\$11,094,500</b>	<b>\$5,714,340</b>	<b>\$3,412,195</b>	<b>\$2,328,932</b>
<b>TOTAL ENVELOPE</b>	<b>\$23,069,273</b>	<b>\$22,510,051</b>	<b>\$22,510,051</b>	<b>\$22,810,051</b>	<b>\$22,810,051</b>
<b>AVAILABLE</b>	<b>\$102,137</b>	<b>\$11,415,551</b>	<b>\$16,795,711</b>	<b>\$19,397,856</b>	<b>\$20,481,119</b>

<sup>1</sup> The committed amount for equipment includes the \$300,000 to be paid by the envelope to NSERC's main RTI program as a reimbursement of the payment NSERC made towards ATLAS' Cost-to-Completion.

<sup>2</sup> EXP OPS = Experimental Operations

Table 3. Breakdown of multiyear commitments at the end of FY2007-08.

The DAS program is aimed at individual and group grants (not Project grants). As indicated in last year's annual report, a procedure is now available for any member of a Collaboration submitting a Project grant to be considered by GSC-19 for the DAS program. This year, no individuals were put forward by the Collaborations that submitted Project grant applications.

### **XIII. Steacie Memorial Fellowship**

The Committee was asked to provide expert-based recommendations about the supplement and RTI - Category 1 grant requests related to the E.W.R. Steacie Fellowship that was awarded to a member of the community. This assessment was carried out during Round 1, and the Committee's recommendations were provided to the E.W.R. Steacie Fellowship Selection Committee.

## **XVI. Policy Matters**

At the end of the competition, the Committee had a session devoted to policy matters. Some of the key points that arose are summarized below.

### **Total Resources**

Even though funds were secured from outside the envelope to provide support to SNOLAB, this is only an interim solution (at the federal level) that will end by March 2009. It is thus important for the subatomic physics community to continue advocating the importance of its contributions to Canada's scientific and economic competitiveness on the international stage. The total resources available to the community must increase to ensure the most effective exploitation of the substantial investments made in a variety of very promising research programs, and to enable further contributions and leadership in new exciting endeavors.

### **RTI Funding**

The community is asked to continue making every effort possible to remove *major* equipment items from Project grant requests and submit them as separate RTI grant applications. Besides potentially maximizing the budget available for the competition in years when the RTI budget outside the envelop allows a funding rate higher than 25% (see last year's annual report for a detailed description of the mechanism), such a distinction makes the GSC's task easier in its efforts to keep capital and operating funding at appropriate fractions of the envelope.

### **Fall Site Visits**

The Committee once again lauded the objective and value of the fall site visits, which provide an exceptional venue for all the members to meet the Canadian community and see first-hand the conditions in which they are working. The visits benefit both the GSC members and the visited institutions.

The Committee will be visiting the Prairies (Manitoba, Saskatchewan, and Alberta), as well as the Perimeter Institute in the fall of 2008.

### **Discovery Accelerator Supplements Program**

As discussed in last year's annual report and in Section XII, a mechanism has been established for experimentalists who are applicants or co-applicants on Project grants to be potentially considered by the Committee as candidates for the DAS program. The mechanism was detailed in last year's annual report. In this year's competition, no individuals were put forward by the Collaborations that submitted a Project grant application. The Committee would like to remind the community of the existence of such a mechanism.

## **APPENDIX 1**

## Subatomic Physics Grant Selection Committee 2008 Competition Large Project Day

**Sunday, February 3, 2008  
Laurier Room (Lower Level)  
Marriott Hotel, 100 Kent Street, Ottawa, Ontario**

8h00 - 8h30	Working Breakfast - Committee <i>in camera</i>	
8h30 - 9h00	SNOLAB (A. Noble)	<i>in camera</i>
9h00 - 9h30	Meeting with Perimeter Institute (R. Myers)	<i>in camera</i>
9h30 - 10h00	Meeting with TRIUMF (J.-M. Poutissou)	<i>in camera</i>
10h00 - 10h30	Meeting with IPP – Review of Institute's Projects (W. Trischuk)	<i>in camera</i>
10h30 - 10h45	<b><i>Coffee Break</i></b>	
10h45 - 11h15	Institute of Particle Physics – MRS application (D. Bailey, W. Trischuk)	<i>in camera</i>
11h15 - 11h45	T2K – Follow-up on Technical Review (A. Konaka)	
11h45 - 12h45	<b><i>Lunch</i></b>	
12h45 - 13h45	SNO+ (M. Chen)	
13h45 - 14h45	DEAP/CLEAN (M. Boulay)	
14h45 - 15h30	PICASSO (V. Zacek)	
15h30 - 15h45	<b><i>Coffee Break</i></b>	
15h45 - 16h30	ATLAS – High-Level Trigger RTI Request (B. Vachon)	
16h30 - 17h15	ATLAS – Upgrades RTI Request (R. McPherson)	
17h15	Committee <i>in camera</i>	

**NOTE:** 1 hour presentations: 30 min. of presentation and 30 minutes for Q&A.  
45 min. presentations: 25 min. of presentation and 20 min. for Q&A.  
30 min. presentations: 20 min. of presentation and 10 min. for Q&A.