Subatomic Physics Evaluation Section
Annual Report

David Hanna, Chair
McGill University
May 2011

I. Introduction

This report summarizes the activities of the subatomic physics (SAP) Evaluation Section (SAPES), formerly known as Grant Selection Committee 19 (GSC-19), in fiscal year 2010-11, and includes the results of the February 2011 competition. The report is provided for information to the NSERC Committee on Grants and Scholarships, and to the Canadian subatomic physics community. The format of the report largely follows the summaries from previous years.

SAPES is unique among NSERC Evaluation Sections since it operates within an annual budget envelope. Individual, Team, and Project Discovery, Research Tools and Instruments (RTI), and Major Resources Support (MRS) grant applications in subatomic physics are evaluated together by SAPES. This comprehensive approach is essential given the complexity and inter-dependency of many proposals, which are often and ever-more frequently parts of international programs and collaborations, and involve many universities and national laboratories. This approach is also essential for planning and stability of execution of large-scale and long-term projects, and for maintaining a balance between large projects and the smaller research efforts that are essential to the breadth and future success of the Canadian SAP program. The envelope structure also helps SAPES to attempt to maintain an appropriate balance between operations and capital investments. Moreover, the SAP community's five-year Long-Range Plan includes the community's priorities, and provides guidance to SAPES' deliberations. The last Long-Range Plan was produced in 2006 and a new plan is currently under development.

Another unique strength of SAPES is the extent to which it solicits reviews by international experts of the highest calibre. All major Team, Project, RTI and MRS grants are separately reviewed by *ad hoc* or standing committees of internationally-recognized experts drawn from institutions from around the world. These committees perform exhaustive on-site scientific, technical, and budgetary evaluations, and produce detailed written reports which provide exceptionally valuable input to SAPES for its assessment of the grant applications. Moreover, SAPES generally selects a substantial proportion of international external referees for each proposal, from the smallest individual discovery grant to the largest project proposal. Finally, the membership of SAPES is itself substantially international, with half or more of its members generally coming from institutions in the U.S. and Europe. This level of international review provides an exceptionally high degree of scrutiny and validation of the research funded by this Evaluation Section.

Despite the internationally-recognized excellence of Canadian SAP research, and the unique strengths of SAPES envelope structure and review processes, it is becoming increasingly difficult for this Evaluation Section to financially support the community's short- and long-term objectives at an appropriate and competitive level to ensure the maximum scientific return on substantial investments already made. This is due in large part to the fact that the SAPES budget has essentially remained flat for many years, while at the same time the SAP community has been extremely successful in its achievements on the international stage and in attracting many new, high-calibre researchers, who are naturally attracted by the excellence of the community and its successes. Furthermore, the SAP community has been extremely successful in obtaining large Canadian Foundation for Innovation (CFI) awards; while this opens exciting possibilities, the lack of a coordinated approach between CFI and NSERC and the assumption that the associated needs in operating funds can be obtained from NSERC, generate severe distortions and pressures on our envelope. The Evaluation Section acknowledged that progress is being made for some of the major infrastructure such as SNOLAB but structural problems continue at all levels. For the 2011 competition, SAPES faced the daunting prospect of being able to fund only 62% of the total requested amount. The share of the envelope now committed to the support of research operations remains at a record high, around 82%, with very limited ability to support new small-to-medium size capital investments that are not usually entertained by the CFI and that are crucial to the mid- to long-term scientific vision of the community.

There is an urgent need to protect and exploit the considerable investments that have already been made in SAP research. One can justifiably state that the Canadian SAP program has become a victim of its own excellence and successes, and that the currently available operating funds are barely enough to maintain existing activities at a constrained level that is not always sufficient to allow Canadian researchers to contribute to the full extent of their potential. Clearly, the internationally-recognized excellence and contributions of the Canadian SAP community, coupled with the unique strengths of the SAPES envelope, ensure that additional investments in this area will yield exceptionally high returns in cutting-edge knowledge and the training of highly-qualified personnel (HQP). Such additional investments are now more needed than ever.

II. Update on the Envelope Funding

The pressure on the Section's funding envelope has been building for the last several years; it has now reached a level that is difficult to manage. In particular, substantial investments by federal and provincial government funding agencies have annually injected funds into the SAP program in excess of 50% of the entire SAPES envelope, including substantial capital investments from CFI and various agencies of the Ontario government (but excluding NRC funding of TRIUMF). Other substantial investments by the Canadian government in science and technology, such as the Canada Research Chairs (CRC) program, have also resulted in a fast growth of the number and the quality of young faculty in SAP at many Canadian institutions. The latter increase has, in turn, been

accompanied by a substantial growth in the number and quality of graduate students and other highly qualified personnel.

Such renewal and expansion are very welcome, and demonstrate the excellence and vitality of the Canadian subatomic physics community. They pose, however, exceedingly difficult funding challenges in a fixed budget scenario. Since the 2006 Long-Range Plan was released, new funds were allocated to NSERC by the federal government in the annual budgets, but were mostly provided for clearly targeted priority areas which did not include SAP. A government-mandated strategic review affected funding of certain programs and operations at NSERC in fiscal year 2009-10, but the Discovery Grants program was not affected and there was no impact on the envelope. The 2010 federal budget included an $8M allocation to NSERC towards discovery research, however this has not translated in any increase in funding to the Discovery Grants Program or any of the programs included in the SAP envelope.

The scenario of a flat envelope was thoroughly analyzed in the 2006 LRP report, with the conclusion that it would lead to a curtailing of research operating support and affect growth possibilities in Canadian SAP research activities. In such a scenario, it was recognized that the ability of the Canadian subatomic physics community to exploit the major capital investments of the past decade and to achieve its long-term scientific vision would be jeopardized.

III. Evaluation Section

This year, SAPES comprised 12 members, including three theorists. Five new members joined this year; they were Philip Burrows (Oxford University), Bonnie Fleming (Yale University), Gerald Gwinner (University of Manitoba), Mark Huyse (Katholieke Universiteit Leuven), and Paul Reimer (Argonne National Laboratory). SAPES' full membership is given below.

Name	Organization	Final Year
Philip Burrows	Oxford University	(2013)
Bonnie Fleming	Yale University	(2013)
Gilles Gerbier	Commissariat à l'énergie atomique - Saclay	(2012)
Gerald Gwinner	University of Manitoba	(2013)
David Hanna (*Chair*)	McGill University	(2011)
Mark Huyse	Katholieke Universiteit Leuven	(2013)
David Kirkby	University of California, Irvine	(2011)
Randy Lewis	York University	(2012)
Thomas Papenbrock	University of Tennessee at Knoxville	(2012)
Paul Reimer	Argonne National Laboratory	(2013)
Moshe Rozali	University of British Columbia	(2011)
Carl Svensson	University of Guelph	(2012)

Normally all members of SAPES attend competition week, but this year Carl Svensson (University of Guelph) was unable to participate due to urgent personal matters which arose late in the calendar year. It is a credit to the flexibility of SAPES members and to the dedication of the NSERC staff that this development was quickly and effectively dealt with.

More generally, the Chair would like to acknowledge the very demanding task faced by SAPES members throughout the year, up to and especially through competition week. Very long hours of deliberations ensured that each proposal was fairly and consistently evaluated according to the selection criteria. The remarkable professionalism and dedication of SAPES members is manifest in the high quality of the Section's recommendations. The Chair also wishes to sincerely thank SAPES members for their careful and constructive attitude throughout the competition, and for ensuring the conduct of our many discussions in a pleasant atmosphere indeed.

It is a special pleasure for the Chair to thank NSERC staff and the Physics Group Chair for their expert guidance and help in the months leading up to the competition, and during the many long days of competition week: James Murphy and Kim Bonnet (Program Officers), Samir Boughaba (Team Leader), Bruce Gaulin (McMaster University - NSERC Group Chair for Physics), and Isabelle Blain (Vice-President, Research Grants & Scholarships). Finally, the Chair wishes to express his highest regards and warmest appreciation to Sam for his extraordinary professionalism, patience, commitment and expert counsel throughout the 2010-11 competition year.

IV. Orientation/Policy Meeting and Information Visits

Each year, SAPES launches its operations at a one-day orientation and policy meeting. This is a critical opportunity for the new members to familiarize themselves with NSERC and SAPES operating procedures, to be informed of the process leading to competition week, and to interact with the returning members. News from NSERC, including a detailed review of the competition budget, are also communicated to the members. The orientation and policy meeting for this competition was held in Montreal on Thursday October 7, 2010. This was a full working day of presentations by the Chair and NSERC staff, and discussions amongst Section members. This year, all new members attended either in person or by teleconference. Owing to budget pressures at NSERC, all returning members, except the Chair, attended by teleconference.

It has been a tradition, following the policy meeting, for SAPES to visit Canadian institutions with subatomic physics research programs on a 3-year rotation basis. The visits were conducted for informational purposes only and were not a part of the grant evaluation process. They provided opportunities to communicate information about NSERC and the review process to researchers, while the Section members heard presentations about the researchers' activities and learned first-hand about their infrastructure and environment. The learning process that accompanied these visits was particularly important considering the large number of SAPES members affiliated with

non-Canadian research institutions. These visits were also a valuable opportunity for Canadian members to get a full sense of the research environments of their colleagues from one end of the country to the other over their three years of service on SAPES.

This year, owing to budget pressures at NSERC, these information visits did not take place. This is viewed by members of SAPES, and indeed much of the SAP community, as a very negative development, as is the mandatory participation by teleconference of returning members in the orientation and policy meeting. The benefits to the review process completely justify the relatively modest costs involved. It is strongly recommended that NSERC reinstate these visits in time for the upcoming competition.

V. Pre-Review Process

The review of the Notifications of Intent to Apply for a Discovery Grant (Form 180), took place in September. Discovery grants include Individual, Team, and Project grants. The review involved all the Section Chairs of the Physics Evaluation Group, including the SAPES Chair, and the Group Chair. Its objective was to discuss those applications whose research topics crossed the boundaries of two or more Sections within the Physics Evaluation Group or related to a discipline other than physics. For each application, the intent was to identify the Section (or Evaluation Group, if the research topic related to another discipline) that should take the lead for the review and determine the need to provide or receive expert input to/from other Evaluation Groups. In the case of SAPES, which operates in a standalone mode with a separate membership, the need to provide or receive expert input was related to the other Sections of the Physics Evaluation Group.

Two Individual grant applications were assigned to SAPES with the provision that members from the Physics Evaluation Group, with relevant expertise, would participate in the deliberations during competition week. Members of SAPES participated in the review of four Individual Discovery grant applications in other Sections of the Physics Evaluation Group.

Furthermore, when the notifications of intent to apply (Form 180 for Discovery Grants and Form 181 for MRS) are received, each application is assigned by the Chair to first and second internal reviewers, who are SAPES members with the most appropriate expertise, and with careful consideration of balancing the full workload among all of the members. Additionally, beginning with this year's competition, a third reviewer is systematically assigned, with special responsibility for budget scrutiny, for applications that request funds averaging $500k/year or more.

In the case of Discovery grant applications, the first reviewer is required to recommend five external referees for each of his/her assigned proposals. Typically, 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. Internal reviewers generally recommend a substantial fraction of external referees who are from outside Canada.

Similarly, once RTI grant applications are received, the Chair assigns first and second internal reviewers to each of them; a third internal reviewer is systematically assigned to Category-3 grant applications. External referee reports are not typically sought for Category-1 and Category-2 RTI grant applications.

VI. Chairs' Meeting

The annual Chairs' meeting was held in Ottawa on November 20, 2010 to finalize the assignment of applications to Evaluation Groups and Sections, as well as reviews involving members from various Evaluation Groups and Sections. Since the assignment of applications to SAPES and the need to provide/receive expert input to/from other Sections of the Physics Evaluation Group was completed through earlier interactions with other Section Chairs and the Group Chair, the SAPES Chair did not participate in this meeting.

VII. *Ad hoc* Review Committees

In this year's competition, two site reviews were conducted prior to the competition, in the fall of 2010. These reviews related to the Project grant application submitted by T2K-Canada and ATLAS-Canada's on-going activities. The T2K-Canada review took place on December 2-3, 2010 and the ATLAS-Canada review was conducted on December 5-6, 2010; both reviews were held at TRIUMF. They were attended by Moshe Rozali as an observer for the SAPES since the Chair was in conflict of interest. The ATLAS Canada review included both the annual review of the overall project and a special review for the High Level Trigger sub-project. The payment of the 2011 installment of the 2008 RTI grant for this sub-project had been made conditional on a positive recommendation of the Evaluation Section on the basis of this review's findings.

There were three technical reviews for the DEAP-3600 project. These were held through face-to-face and teleconference meetings. These reviews were required by the Evaluation Section. The payment of the 2011 instalment of the DEAP-3600 Project grant was made conditional on a positive recommendation of the Evaluation Section on the basis of these review's findings. Carl Svensson represented SAPES as an observer at these reviews.

The reviews were carried out by *ad hoc* or standing Committees of experts. Full reports with recommendations, including budget recommendations when applicable, were prepared for SAPES. The reports, without the budget recommendations, were sent by NSERC to the project Collaborations prior to Large Project Day. Since last year, the reports *with* the budget recommendations are sent to the project Collaborations after the results of the competition are announced.

The Chair also attended the meeting of the Advisory Committee on TRIUMF (ACOT) held on December 10-11, 2010. He will be attending the ACOT meeting on May 13-14, 2011.

VIII. Large Project Day

It has proved extremely useful to devote one day prior to the beginning of the competition to presentations by applicants of Discovery and MRS grant applications typically requesting an average of $500k per year or more, besides applicants of Category-2 or Category-3 RTI grant proposals. This is referred to as Large Project Day (LPD). It is also now customary to meet on LPD with management representatives from the Canadian Institute of Nuclear Physics (CINP), the Institute of Particle Physics (IPP), the Perimeter Institute, SNOLAB, and TRIUMF. LPD was held this year in Ottawa on Sunday, February 6, 2011. The agenda is attached as Appendix 1.

The day began with *in camera* presentations by William Trischuk (Director of the IPP), Kumar Sharma (President of the Board of Directors of the CINP), Reiner Kruecken (Associate Director of TRIUMF), Nigel Smith (Director of SNOLAB), and Cliff Burgess (representing the Director of the Perimeter Institute). They provided the Section with the perspective of the communities served by their organizations. Applicants then made presentations and answered questions previously submitted by the Evaluation Section; this was done in an open session that was attended by about 15 members of the community. The invited projects were, in order of presentation, T2K, CPP+ (MRS grant application for the Centre for Particle Physics), EXO, ATLAS (High Level Trigger), and DEAP-3600.

Following these public presentations, the Evaluation Section met *in camera* with Malcolm Butler, Chair of the Long Range Planning Committee (LRPC) who provided an update on that committee's progress to date. There was no discussion of priorities or any topics that could have prejudiced the deliberations during competition week.

The day finished with an *in camera* meeting with Isabelle Blain (Vice-President, Research Grants & Scholarships). SAPES members expressed their concerns about the demise of the autumn visits to universities.

IX. Beginning of the Competition

The funds available to the Section at the beginning of the competition are shown in Table 1. The base budget from year to year maintains a flat profile, and no new permanent funds have come into the envelope since fiscal year 2007-08. In particular, there was no addition of funds for new applicants who entered the envelope since fiscal

2011 Competition - Subatomic Physics Envelope Budget At Beginning of Competition							
(millions of dollars)							
Budget Item	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**
Base Budget	20.665	20.665	20.665	20.665	20.665	20.665	20.665
Cumulative Permanent Transfers:							
New Applicants[1]	1.622	1.622	1.622	1.622	1.622	1.622	1.622
Reallocations[2]	0.459	0.459	0.459	0.459	0.459	0.459	0.459
Transfers from other programs[3]	0.064	0.064	0.064	0.064	0.064	0.064	0.064
Transfers due to population dynamics[4]			-0.183	-0.183	-0.183	-0.183	-0.183
Temporary Transfers:							
ATLAS Cost-to-Completion	-0.300	-0.300	-0.300	0.000	0.000	0.000	0.000
Forward-Borrow	0.000	0.600	-0.150	-0.150	-0.150	-0.150	0.000
Miscellaneous	0.075[5]						
Total Fiscal Year	22.666	23.239	22.410	22.477	22.477	22.477	22.627
Actual Spending	22.667	23.006	22.047				
Carry-forward[6]	0.102	0.233	0.363				
Commitments[7]				-18.261	-5.697	-1.546	-0.899
RTI budget adjustment[8]	0.081	0.027	-	-			
Available for Competition				**4.579**			

[1] *There was no allocation of new funds for new applicants for the 2011 competition.*

[2] *FY 2007/08 was the last year for the 2002 reallocations exercise.*

[3] *$64,000 were added to the envelope as a result of the $1M increase to the general MRS budget (6.4%).*

[4] *Net total of grants held by returning applicants whose new applications are transferred in/out from SAP Evaluation Section.*

[5] *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 FY 2007-08 and 2008-09. 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).*

[6] *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.*

[7] *These commitments do not include the $300K paid by the envelope towards the ATLAS Cost-to-Completion (2008 to 2010).*

[8] *For the 2011 competition, there was no RTI adjustment.*

Table 1. Overall budget available at the beginning of the 2011 competition.

year 2008-09, while the amount generated by the 2002 Reallocations exercise flat-lined in fiscal year 2007-08, which was the last year of the implementation of the results of that exercise.

An amount of $150k was subtracted from the envelope for fiscal year 2011-12 as the second reimbursement installment of a four-year forward borrowing commitment from the 2009 competition. There was a carry-forward of $363k from last year's competition into this year's budget, mostly due to various payment adjustments and deferrals. There was no RTI budget adjustment.

Taking into account on-going commitments from previous competitions, $4.579M was available for the 2011 competition (20% of the fiscal year budget). This year, SAPES received 40 applications. At the start of competition, the total funds requested for fiscal 2011 amounted to $7.327M.

Consequently, at that point in the competition, the projected average funding rate for fiscal 2011 was 62%. For comparison, the funding rates for the years 2003 to 2010 were 58%, 55%, 58%, 60%, 55%, 66%, 66%, and 46% respectively.

X. The 2011 Competition

The competition was held in Ottawa over a period of five days, from Monday, February 7 to Friday, February 11, 2011. The first day started with a review of logistics, policies, and procedures, and a presentation of the budget as outlined in the previous section. The Evaluation Section then started Round 1 of the competition, and proceeded with the review of the applications.

The format of the discussions strictly followed NSERC's guidelines and SAPES internal procedures. Previously, in the fall of 2010, at least two SAPES members were assigned to conduct an *internal* review of each application. During competition week, for each application, the first internal reviewer presented all aspects of the proposal and made her/his recommendations (rating, funding, duration). This was followed by additional comments and/or a presentation by the second internal reviewer, who also made recommendations. For grants requesting in excess of $500k per year, a third presentation, concentrating on budget matters, was made. These in-depth assessments were carried out independently by the internal reviewers (who were not aware of the other's identify before the first reviewer's presentation), and took into account the reports received from external referees, if available, as well as site visit reports where applicable. Each application was then thoroughly discussed by all SAPES members. At the end of the discussion, each member was asked to rate the application against NSERC's selection criteria: (i) excellence of the researcher(s), (ii) merit of the proposal, (iii) contributions to the training of HQP, and (iv) need for funds. SAPES then decided whether to recommend funding the application, the level of funding, and the funding duration. Any recommendation was determined through secret electronic voting. The median vote was selected as the final SAPES recommendation. 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 or of the identity of the internal reviewers.

Once the review of the experimental Individual, Team, and Project Discovery grant applications, as well as typically large RTI (Categories 2 and 3) and MRS (more than an average of $500k per year requested) proposals were completed, SAPES members were divided into two sub-Sections: theory and RTI/MRS. The theory sub-Section reviewed all the theory Individual or Team grant applications. The RTI/MRS sub-Section reviewed the Category-1 RTI grant requests (up to $150k requested in total), as well as the MRS grant applications requesting an average of less than $500k per year.

As usual, it was strictly forbidden for SAPES 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 ensure that all applications were treated consistently and fairly. As a matter of fact, taking into account the members' conflicts of interest and the split into two sub-Sections, such budget tracking is practically impossible.

Moreover, in order to ensure the integrity of the review process, applications could be flagged by any SAPES member, the Group Chair, the Program Officer, or the Team Leader at any time in Round 1, if he/she felt that some aspects of the discussion or the recommendation necessitated further discussion.

The Round 1 deliberations concluded in the early afternoon on Wednesday, February 9. The Team Leader made a presentation on the budget, taking into account the sum of the recommended awards for all the applications. The result was that a sum of $5.027M had been recommended from the envelope, to be compared to a total of $4.579M that was available to SAPES, and $7.327M in requested funds.

Prior to the start of Round 2, a thorough discussion took place to establish the guiding principles for re-evaluation of all proposals in an attempt to balance the budget. The SAPES members were unanimous that the same set of principles would be applied to all proposals, that all proposals would again be assessed strictly on their merits, and that strict account would be taken of the Section's evaluations of the four criteria for each proposal, which had been recorded in Round 1. All applications were then re-assessed and revised funding recommendations made, again using secret electronic vote.

The Round 2 deliberations concluded in the afternoon of Thursday, February 10. The Team Leader presented the results at the beginning of Round 3. The revised recommendation by the Section was for $4.741M from the envelope, compared again with the available sum of $4.579M. At that stage, the SAPES members unanimously agreed to a further round of deliberations (Round 3) following the same procedure as for Round 2.

The recommendations following Round 3 totalled $4.488M and the balance ($91k) was allocated as a carry-forward for the 2012 competition.

With a recommended total funding of $4.488M from the envelope and a total request for $7.327M, the funding rate for this year's competition is 61%.

XI. End of Competition Results

The Section's final multiyear budget levels are shown in Table 2. Table 3 shows a multiyear breakdown of theory, experimental operating, MRS, and capital allocations, while Table 4 gives the percentage share of the envelope in theory, operations, and equipment over the period from 2006 through 2011.

As forecast in the 2006 Long-Range Plan, these figures provide quantitative measures of the funding crisis which has loomed over the SAP community for several years. The share of the envelope now committed to the support of research operations remains near the record high of 82%, with little room for small-to-medium size capital investments for emerging endeavours.

In the recent past, the SAP community has shifted towards the CFI for major capital equipment. This additional source of funding is welcome, but it is important to highlight the fact that it is in turn generating further pressure on the envelope as the latter is the main funding source in support of research and operating costs. It is unfortunate that repeated attempts to foster some level of coordination between CFI and NSERC have not yet succeeded. Moreover, the need for small-to-medium capital investments by SAPES, mostly for proposals that fall outside the mandate of the CFI, will likely increase again in the coming years. In particular, funds from SAPES will be needed for R&D efforts that are crucial for the future of Canadian SAP, and to satisfy the capital needs of the smaller programs that are essential to the breadth of the community.

XII. Recommendations to the DAS Program

This is the fifth year of the Discovery Accelerator Supplements (DAS) program. The objective of this program 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 are allocated when progress of the incumbent's research program is held back by insufficient funding. Contrary to the practice followed up to and including 2009, where GSC-19 would put forward DAS candidates to be further reviewed by a multidisciplinary committee, SAPES now directly allocates one DAS award. During the *first* round of deliberations, for each Individual and Team Discovery grant application, SAPES members could put forward the applicant(s) after the deliberation and votes. All the potential candidates were then discussed in detail against the DAS selection criteria and objectives during Round 3. Subsequently, the members rated each candidate on a scale of 1 (excellent) to 5 (below average) through a secret vote, and one candidate was selected by numerical tally of the Section's votes.

The DAS program is not aimed at Project grant applications. As indicated in the 2009 annual report, a procedure is available for any member of a Collaboration submitting a Project grant application to be considered by SAPES for the DAS program. This year, no individuals were put forward by the Collaborations that submitted Project grant applications. There are doubtless various sociological and procedural reasons for this.

XIII. Policy Matters

At the end of the competition, the Evaluation Section had a session devoted to policy matters. Key points that arose are summarized below.

Information Visits to Universities

The members reiterated once again the benefits to the review process of the fall visits to universities and organizations with subatomic physics research activities, alongside a face-to-face orientation and policy meeting. The Section recommended that NSERC reinstate these visits in time for the 2012 competition.

Information About Highly Qualified Personnel

Applicants are reminded that all assessment criteria are taken into account when reviewing any application, and it is important for applicants to provide sufficient information to enable reviewers to assess each criterion. In particular, the criterion "Contributions to the training of HQP" should be addressed in *all types* of grant applications, including Research Tools and Instruments and Major Resources Support. In their Form 101, applicants should describe the activities that are appropriate for HQP training, discuss the pertinence and value of the training plans, and provide details on their planned role and contributions in the case of a co-supervisory setting. This is to complement the information included in the Form 100 on their training record, approach to training, and their role and contributions to past co-supervision (when applicable).

Ad hoc Process for DAS in the Case of Project Grant Applications

As stated above, the DAS program is not intended for Project grant applications. The members reiterated their support to the established *ad hoc* process that could be used by Collaborations to put forward an individual who may be considered for a Supplement. The Section recognizes that this process presents challenges to the Collaborations, but it is a viable attempt to allow researchers in Collaborations to be potentially considered, taking into account the objective and constraints of the DAS program.

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(millions of dollars)							
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Base Budget	20.665	20.665	20.665	20.665	20.665	20.665	20.665
Cumulative Permanent Transfers:							
New Applicants[1]	1.622	1.622	1.622	1.622	1.622	1.622	1.622
Reallocations[2]	0.459	0.459	0.459	0.459	0.459	0.459	0.459
Transfers from other programs[3]	0.064	0.064	0.064	0.064	0.064	0.064	0.064
Transfers due to population dynamics[4]		-0.183	-0.183	-0.183	-0.183	-0.183	-0.183
Temporary Transfers:							
ATLAS Cost-to-Completion	-0.300	-0.300	0.000	0.000	0.000	0.000	0.000
Forward-Borrow Miscellaneous	0.600	-0.150	-0.150	-0.150	-0.150	0.000	0.000
Total Fiscal Year	23.239	22.410	22.477	22.477	22.477	22.627	22.627
Actual Spending	23.006	22.047	22.749				
Carry-forward[6]	0.233	0.363	0.091				
Commitments[7]				-10.357	-5.261	-1.839	-0.940
RTI budget adjustment[8]	0.027	-	-				
Available for Competition							

[1] *There was no allocation of new funds for new applicants for the 2011 competition.*

[2] *FY 2007/08 was the last year for the 2002 reallocations exercise.*

[3] *$64,000 were added to the envelope as a result of the $1M increase to the general MRS budget (6.4%).*

[4] *Net total of grants held by returning applicants whose new applications are transferred in/out from SAP Evaluation Section.*

[5] *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 FY 2007-08 and 2008-09. 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).*

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[7] *These commitments do not include the $300K paid by the envelope towards the ATLAS Cost-to-Completion.*

[8] *For the 2011 competition, there was no RTI adjustment.*

Table 2. Multi-year budget summary at the end of the 2011 competition.

SUBATOMIC PHYSICS ENVELOPE MULTI-YEAR COMMITMENTS BY CATEGORY AT END OF 2011 COMPETITION					
	2011	**2012**	**2013**	**2014**	**2015**
RTI - COMMITTED	$1,103,000				
RTI - NEW (2011 Competition)	$157,500				
RTI - TOTAL	**$1,260,500**				
THEORY-COMMITTED	$2,714,500	$1,975,500	$1,067,500	$582,500	
THEORY - NEW (2011 Competition)	$516,000	$572,000	$582,000	$406,000	$406,000
THEORY - TOTAL	**$3,230,500**	**$2,547,500**	**$1,649,500**	**$988,500**	**$406,000**
EXP OPS** - COMMITTED	$12,010,000	$1,628,000	$135,000	$120,000	
EXP OPS - NEW (2011 Competition)	$3,399,000	$3,618,000	$3,015,000	$534,000	$534,000
EXP OPS - TOTAL	**$15,409,000**	**$5,246,000**	**$3,150,000**	**$654,000**	**$534,000**
MRS - COMMITTED	$2,433,195	$2,093,932	$343,000	$196,000	
MRS - NEW (2011 Competition)	$416,000	$470,000	$118,000		
MRS - TOTAL	**$2,849,195**	**$2,563,932**	**$461,000**	**$196,000**	**$0**
TOTAL - COMMITTED	**$18,260,695**	**$5,697,432**	**$1,545,500**	**$898,500**	**$0**
TOTAL - NEW (2011 Competition)	**$4,488,500**	**$4,660,000**	**$3,715,000**	**$940,000**	**$940,000**
GRAND TOTAL	**$22,749,195**	**$10,357,432**	**$5,260,500**	**$1,838,500**	**$940,000**
TOTAL ENVELOPE	**$22,989,993**	**$22,627,051**	**$22,627,051**	**$22,627,051**	**$22,627,051**
ADJUSTMENT (FORWARD BORROW / REIMBURSEMENT)	**-$150,000**	**-$150,000**	**-$150,000**		
CARRY FORWARD (2011) / AVAILABLE	**$90,798**	**$12,119,619**	**$17,216,551**	**$20,788,551**	**$21,687,051**

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

Table 3. Breakdown of multiyear commitments at the end of the 2011 competition.

Subatomic Physics Evaluation Section
Evolution of Envelope's Shares

	2011	**2010**	**2009**	**2008**	**2007***	**2006**
Theory	14%	14%	14%	15%	16%	14%
RTI	6%	4%	8%	16%	14%	15%
Total Research Ops	80%	82%	82%	69%	70%	71%
Exp. Ops	68%	69%	69%	59%	61%	62%
MRS (MFA)	13%	13%	13%	11%	10%	8%

** Takes into account the fact that SNOLAB's MRS grant was subsequently paid from outside the envelope.*

Table 4. Envelope share in theory, experimental operations, and equipment, from 2006 to 2011.

Appendix 1

NSERC CRSNG

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SUBATOMIC PHYSICS EVALUATION SECTION

2011 COMPETITION

LARGE PROJECT DAY

Sunday, February 6, 2011
Salon Wellington (3rd Floor)
Marriott Hotel, 100 Kent Street, Ottawa, Ontario

7h45 - 8h30	Committee's Working Breakfast – *in camera*	
8h30 - 8h55	Meeting with the Institute of Particle Physics – *in camera*	W. Trischuk
8h55 - 9h20	Meeting with the Canadian Institute of Nuclear Physics – *in camera*	K. Sharma
9h20 - 9h45	Meeting with TRIUMF – *in camera*	R. Kruecken
9h45 - 10h10	Meeting with SNOLAB – *in camera*	N. Smith
10h10 - 10h35	Meeting with Perimeter Institute – *in camera*	C. Burgess
10h35 - 10h55	***Coffee Break***	
10h55 - 11h55	Canadian participation in the T2K neutrino oscillation experiment	S. Oser
11h55 - 13h00	***Lunch***	
13h00 - 13h45	CPP+, the MRS application of the centre for particle physics	J. Pinfold
13h45 - 14h30	A search for neutrinoless double beta decay in Xenon	D. Sinclair
14h30 - 15h15	Technical review / ATLAS High Level Trigger	B. Vachon / R. McPherson
15h15 - 15h30	***Coffee Break***	
15h30 - 16h15	Technical review / DEAP-3600	M. Boulay
16h15 - 16h40	Meeting with Chair of Long Range Plan Committee – *in camera*	M. Butler
16h40	Committee meets *in camera*	

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.
25 min. presentations: 15 min. of presentation and 10 min. for Q&A.

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