People. Discovery. Innovation.
Les gens. La découverte. L’innovation.
What’s new at NSERC?
How to prepare an application

Kenn Rankine
NSERC Program Officer

September 5, 2014
Presentation Overview

- NSERC Updates and New Initiatives
- Competition results – 2014
- Discovery Grant Program Overview
- How to prepare an application
- Questions
NSERC Overview

NSERC invests in People, Discovery, and Innovation that Impact on the prosperity of Canada now and into the future.

People
Attract and retain the best students and researchers in Canada by supporting more than 30,000 students and postdoctoral fellows.

Discovery
Enable Canadian scientists and engineers to become global leaders in their fields by funding more than 11,000 professors for their research programs.

Innovation
Increase Canada’s prosperity by building connections and supporting the application of research by funding research projects with 2,800 Canadian companies.

Impact
Promote the accomplishments of Canadian researchers and strengthen our business excellence.

Total Budget 2013-14
$1.07 billion

- People: 33.5%
- Discovery: 25.6%
- Innovation: 36.3%
- Administration: 4.7%
Budget 2014: The Highlights

• Good news for research, training and innovation
  – $15 million per year to NSERC to support advanced research in the natural sciences and engineering
  – $9 million per year for the Indirect Costs Program
  – Industrial R&D Fellowships program funds redeployed to other priorities within NSERC ($7 million)
  – Canada First Research Excellence Fund: $200 million per year by 2018-19
Discovery Grants Budget Allocation

- **Parameters** to allocate funds have been under review:
  - CCA advice to NSERC published in July 2012
  - NSERC consultations ending spring 2013
- **Goal:** to ensure that the program remains effective, accountable and that funds are used optimally
- **Discipline comparisons and allocations** are to be informed by quantitative indicators and expert judgment
Research Portal Enhancements

- The capacity for applicants to append their CCV directly to their NOI in the Research Portal without having to download/upload an .XML file.

- Technical support improvements such as:
  - Users can unlock their Research Portal accounts (reset their own password);
  - New ticketing system and online support tracking tool to better manage the calls and emails.
CCV Enhancements – Fall 2014

- Created a CCV Consultation Group (Spring)
- Clearer instructions for completing the NSERC CCV, where possible
- Improved PDF preview of the CCV will be available in the coming months
  - Shorter and more appealing layout for both the applicant and reviewers
CCV Enhancements – Fall 2014

- Elimination of unnecessary required (*) fields such as:
  - Funding by year (duplicate entries no longer required)
  - Funding sources for contributions and publications (this step no longer required)

- Business rule that limits entries to the last six years will be improved (e.g. window will be Jan. 2008 – Nov. 2014)

- Ability to import publication data directly from databases that are commonly used by members of NSERC’s community will be available sometime in June.
Discovery Grants Program Evaluation

- **Key question:** is the program achieving its three (3) objectives and outcomes given changes to peer review process?

- **Key finding:** Discovery Grants continue to be Canada’s most important support mechanism for foundational research

- **No major changes recommended** — all recommendations reflect refinements to the existing system
NSERC’s Mandate

- One of the two main functions of NSERC is to promote and assist research in the natural sciences and engineering, other than the health sciences.

- The program of research and intended objectives must be primarily in the natural sciences and engineering (NSE).

Resources:
- Selecting the Appropriate Federal Granting Agency
- Discovery Grants Document: How NSERC determines whether a Discovery Grant application fits its mandate
Discovery Grants Program
2014 Results
## Discovery Grants Overall Results – 2014 Competition

<table>
<thead>
<tr>
<th>Data</th>
<th>Success Rate</th>
<th>Average Grant</th>
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</thead>
<tbody>
<tr>
<td>Early Career Researchers (ECR)</td>
<td>66%</td>
<td>$26,999</td>
</tr>
<tr>
<td>Established Researchers (ER)</td>
<td>80%</td>
<td>$36,550</td>
</tr>
<tr>
<td>Renewing their grant (ER-R)</td>
<td>80%</td>
<td>$36,550</td>
</tr>
<tr>
<td>Not Holding a Grant (ER-NHG)</td>
<td>37%</td>
<td>$28,463</td>
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</tbody>
</table>

1. Includes Discovery and Subatomic Physics (Individual and Team) Grants, but excludes the Subatomic Physics Projects.
2. Includes returning established unfunded applicants and experienced researchers submitting a first application.

Note: Non-official results
Research Tools and Instruments

- 2014 was the first year of having institutional quotas.
- Quota 500. Minimum of 2 per institution. Based on NSERC-funded researchers at institution.
- Quota of 700 awards for upcoming competition. Individual quotas have been distributed to universities.
# Research Tools and Instruments (RTI) 2014 Competition

<p>| | |</p>
<table>
<thead>
<tr>
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<td>Number of Applications</td>
<td>468</td>
</tr>
<tr>
<td>Number of Awards</td>
<td>157</td>
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<tr>
<td>Awarded Amount</td>
<td>$17.5M</td>
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<td>Funding rate</td>
<td>34.2%</td>
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## Discovery Accelerator Supplements 2014 Competition

<table>
<thead>
<tr>
<th>Evaluation Group (EG)</th>
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<tbody>
<tr>
<td>Genes, Cells and Molecules (1501)</td>
<td>9</td>
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<tr>
<td>Biological Systems and Functions (1502)</td>
<td>10</td>
</tr>
<tr>
<td>Evolution and Ecology (1503)</td>
<td>11</td>
</tr>
<tr>
<td>Chemistry (1504)</td>
<td>7</td>
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<tr>
<td>Physics (1505)</td>
<td>6</td>
</tr>
<tr>
<td>Geosciences (1506)</td>
<td>14</td>
</tr>
<tr>
<td>Computer Science (1507)</td>
<td>15</td>
</tr>
<tr>
<td>Mathematics and Statistics (1508)</td>
<td>8</td>
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<tr>
<td>Civil, Industrial and Systems Engineering (1509)</td>
<td>12</td>
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<tr>
<td>Electrical and Computer Engineering (1510)</td>
<td>13</td>
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<tr>
<td>Materials and Chemical Engineering (1511)</td>
<td>9</td>
</tr>
<tr>
<td>Mechanical Engineering (1512)</td>
<td>10</td>
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<tr>
<td>Subatomic Physics (19)</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>125</strong></td>
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Discovery Grants Program

- Successful use of the two-stage process and conference model - implemented by NSERC in 2009 and 2010
- Evaluation structure consists of 12 Evaluation Groups
- Applications are assessed on 3 merit criteria: Excellence of the researcher, Merit of the proposal, and Contribution to the training of HQP using a 6-point scale
- Applications are grouped into “bins” of comparable overall quality
# DG Two-Step Review Process

## Merit assessment

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<tr>
<th></th>
<th>Exceptional</th>
<th>Outstanding</th>
<th>Very Strong</th>
<th>Strong</th>
<th>Moderate</th>
<th>Insufficient</th>
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</thead>
<tbody>
<tr>
<td>Excellence of researcher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Merit of proposal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contribution to training of HQP</td>
<td></td>
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## Funding recommendation

<table>
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<tr>
<td>B (L, N, H)</td>
</tr>
<tr>
<td>C (L, N, H)</td>
</tr>
<tr>
<td>D (L, N, H)</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>O</td>
</tr>
<tr>
<td>P</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Cost of research</th>
<th>High</th>
<th>Normal</th>
<th>Low</th>
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The Conference Model

- Evaluation structure consists of **12 Evaluation Groups (EGs)**
- Several sessions occur in parallel streams.
- Members are assigned to various sections/applications on the basis of the match between their expertise and application subject matter.
  - Members may participate in reviews in more than one EG.
- Flexibility allows applications at the interface between Evaluation Groups to be reviewed by a combination of members with pertinent expertise from relevant groups.
Evaluation Groups

- Genes, Cells and Molecules (1501)
- Biological Systems and Functions (1502)
- Evolution and Ecology (1503)
- Chemistry (1504)
- Physics (1505)
- Geosciences (1506)
- Computer Science (1507)
- Mathematics and Statistics (1508)
- Civil, Industrial and Systems Engineering (1509)
- Electrical and Computer Engineering (1510)
- Materials and Chemical Engineering (1511)
- Mechanical Engineering (1512)
Interdisciplinary Applications

- All applications benefit from the conference model which allows for joint reviews (JRs) between EGs
- Primary EG is the closest EG related to the applicant’s research area.
  - Reviewers from other EGs are added as necessary, based on expertise.
  - JRs can be done with one or more visiting reviewers from one or more different EGs
Interdisciplinary Applications (Review Process)

- In person or via teleconference
- Five EG members review the application
- Each member has an equal vote
## Implementation of the Conference Model and the Rating Indicators

<table>
<thead>
<tr>
<th>Reader</th>
<th>Second Internal</th>
<th>Conflicts?</th>
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</thead>
<tbody>
<tr>
<td><strong>Excellence</strong></td>
<td><strong>Merit</strong></td>
<td><strong>HQP</strong></td>
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<tr>
<td>Outstanding</td>
<td>Outstanding</td>
<td>Outstanding</td>
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<tr>
<td>Outstanding</td>
<td>Very Strong</td>
<td>Outstanding</td>
</tr>
<tr>
<td>Outstanding</td>
<td>Very Strong</td>
<td>Very Strong</td>
</tr>
<tr>
<td>Outstanding</td>
<td>Very Strong</td>
<td>Very Strong</td>
</tr>
<tr>
<td>COR Factor:</td>
<td>N</td>
<td>N</td>
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</table>

Program Officer: **Very Strong**

Chair: **Outstanding**

First Internal: **Outstanding**

**Second Internal:**

<table>
<thead>
<tr>
<th>Reader</th>
<th>Second Internal</th>
<th>Conflicts?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Excellence</strong></td>
<td><strong>Merit</strong></td>
<td><strong>HQP</strong></td>
</tr>
<tr>
<td>Outstanding</td>
<td>Outstanding</td>
<td>Outstanding</td>
</tr>
<tr>
<td>Outstanding</td>
<td>Very Strong</td>
<td>Outstanding</td>
</tr>
<tr>
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<td>Very Strong</td>
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</tr>
<tr>
<td>Outstanding</td>
<td>Very Strong</td>
<td>Very Strong</td>
</tr>
<tr>
<td>COR Factor:</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

Program Officer: **Very Strong**

Chair: **Outstanding**

First Internal: **Outstanding**
Resource Materials

- Consult the *Peer Review Manual*, Section Six (6) in conjunction with the Merit Indicators

  - Submitting a DG through the Research Portal
  - Tip to help applicants write a better proposal (interviews with EG members)
  - Demystifying the DG review process
# Discovery Grants Indicators

## 6.13. Discovery Grants Merit Indicators

<table>
<thead>
<tr>
<th>Excellence of the Researcher</th>
<th>Exceptional</th>
<th>Outstanding</th>
<th>Very Strong</th>
<th>Strong</th>
<th>Moderate</th>
<th>Insufficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledged as a leader who has continued to make, over the last six years, influential accomplishments at the highest level of quality, impact and/or importance to a broad community.</td>
<td>The accomplishments presented in the application were deemed to be far superior in quality, impact and/or importance.</td>
<td>The accomplishments presented in the application were deemed to be of superior quality, impact and/or importance.</td>
<td>The accomplishments presented in the application were deemed to be solid in their quality, impact and/or importance.</td>
<td>The accomplishments presented in the application were deemed to be of reasonable quality, impact and/or importance.</td>
<td>The accomplishments presented in the application were deemed to be below an acceptable level of quality, impact and/or importance.</td>
<td></td>
</tr>
</tbody>
</table>

| Merit of the Proposal | | | | | |
|-----------------------|-------------|-------------|-------------|--------|----------|--------------|
| Proposed research program is clearly presented, is extremely original and innovative and is likely to have impact by leading to groundbreaking advances in the area and/or leading to a technology or policy that addresses socio-economic or environmental needs. Long-term vision and short-term objectives are clearly defined. The methodology is clearly defined and appropriate. The budget clearly demonstrates how the research activities to be supported are distinct from and complement those funded by other sources. | Proposed research program is clearly presented, is highly original and innovative and is likely to have impact by contributing to groundbreaking advances in the area, and/or leading to a technology or policy that addresses socio-economic or environmental needs. Long-term goals are clearly defined and short-term objectives are well planned. The methodology is clearly described and appropriate. The budget clearly demonstrates how the research activities to be supported are distinct from and complement those funded by other sources. | Proposed research program is clearly presented, is original and innovative and is likely to have impact by leading to advancements and/or addressing socio-economic or environmental needs. Long-term goals and short-term objectives are clearly described. The methodology is described and appropriate. The budget demonstrates how the research activities to be supported are distinct from and complement those funded by other sources. | Proposed research program is clearly presented, is original and innovative and is likely to have impact and/or address socio-economic or environmental needs. Long-term goals and short-term objectives are clearly described. The methodology is partially described and/or appropriate. The budget demonstrates how the research activities to be supported are distinct from and complement those funded by other sources. | Proposed research program, as presented lacks clarity, and/or is of limited originality and innovation. Objectives are not clearly described and/or likely not attainable. Methodology is not clearly described and/or appropriate. The budget does not clearly demonstrate how the research activities to be supported are distinct from and complement those funded by other sources. |

| Training of HQP | | | | | |
|-----------------|-------------|-------------|-------------|--------|----------|--------------|
| Training record is at the highest level, with HQP contributing to top quality research. Most HQP move on to positions that require highly desired skills, obtained through training received. Research plans for trainees are appropriate and clearly defined. HQP success highly likely. | Training record is far superior to other applicants, with HQP contributing to high-quality research. Most HQP move on to positions that require highly desired skills, obtained through training received. Research plans for trainees are appropriate and clearly defined. HQP success highly likely. | Training record is superior to other applicants, with HQP contributing to quality, original research. Many HQP move on to appropriate positions that require desired skills, obtained through training received. Research plans for trainees are appropriate and clearly described. HQP success is likely. |Training record is acceptable but may be modest relative to other applicants. Some HQP generally move on to positions that require desired skills, obtained through training received. Plans for trainees are described and should contribute to HQP success. | Training record is below an acceptable level relative to other applicants. HQP do not, in general, move on to positions that require skills obtained through training received. Plans for trainees are not described with enough information to predict likelihood of HQP success. |

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1. The Discovery Grants Merit Indicators should be used in conjunction with the Peer Review Manual (Chapter 6) which outlines how reviewers arrive at a rating.

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2. Possible examples include: Cost of training of HQP, Equipment intensive research and/or high users fees, particularly expensive or frequent consumables, Travel (for collaborations, field work, access to facilities, conferences, ...)
APPLYING TO THE DISCOVERY GRANTS PROGRAM
Life Cycle of a Discovery Grant Application

August 1
Submission of Notification of Intent to Apply with CCV

September to October
Initial assignment to EG and contacting of external reviewers

November 1
Submission of grant application with CCV

Mid-November
Applications sent out to external reviewers

Early December
Evaluation Group members receive applications

February
Grants competition

March to April
Announcement of results
Notification of Intent to Apply for a Discovery Grant – When and What?

- **Deadline: August 1**
  - Electronic submission only through the Research Portal
  - Mandatory: if not submitted by deadline, full application will not be accepted

- **Includes:**
  - Notification of Intent to Apply, listing up to five research topics in priority order
  - CCV
  - CCV of co-applicants (for team grants)
Notification of Intent to Apply for a Discovery Grant – Why?

- Used to identify:
  - Most appropriate EG to review the application
  - Need and potential benefits of a joint review between EGs
  - External reviewers for the application
  - Mandate eligibility issues
Submitting a Discovery Grant Application

- Deadline November 1st through Research Portal
  - Check institutional internal deadline
- A full Discovery Grant submission includes:
  - Application for a Grant
  - NSERC Researcher CCV for the applicant and all co-applicants
  - Samples of research contributions (reprints, pre-prints, thesis chapters, manuscripts, patents, technical reports, etc.)
Evaluation Criteria

- Scientific or Engineering Excellence of the Researcher(s)
- Merit of the Proposal
- Contribution to the Training of HQP
Scientific or Engineering Excellence of the Researcher(s)

- Knowledge, expertise and experience
- Contributions to research in the NSE
- Importance of contributions
- Complementarity of expertise and synergy (for team applications)
Scientific or Engineering Excellence of the Researcher(s): Tips

- Describe up to five most significant research contributions (now in application) and highlight quality & impact
- List all types of research contributions (from 2008-2014)
- Explain your role in collaborative research activities
- List all sources of support
- Give other evidence of impact
- Explain delays in research activity (See Peer Review Manual, Section 6, for details)
Merit of the Proposal

- Originality and innovation
- Significance and expected contributions to research, and potential for technological impact
- Clarity and scope of objectives
- Clarity and suitability of methodology
- Feasibility
- Extent to which the proposal addresses all relevant issues
- Appropriateness and justification of the budget
- Relationship to other sources of funding
Merit of the Proposal: Tips

- Write summary in plain language
- Keep in mind that two audiences read your application: expert and non-expert
- Provide a progress report on related research
- Position the research within the field and state-of-the-art
- Clearly articulate short- and long-term objectives
- Provide a detailed methodology and realistic budget
- Consider comments/recommendations you may have received for previous applications
Merit of the Proposal – Tips: Overlap

- Discuss relationships to other research support
  - For each grant currently held or applied for, clearly provide: the main objective, a brief outline of the methodology, budget details, and details on the support of HQP
  - Must include summary and budget pages for CIHR and SSHRC grants currently held or applied for

- Explain any potential conceptual overlap with other programs/projects
  - Complementary research is encouraged, but must be clearly explained

- Saying “there is no overlap” is not sufficient
Additional Tips …

- **Do…**
  - Be original and creative, but also show you have the expertise to carry out the program
  - Have long term vision and short term plan
  - Integrate HQP into the proposal

- **Don’t…**
  - Propose an unfeasible number of objectives
  - Propose a project or a series of disconnected projects
  - Use a lot of jargon and acronyms
  - Be vague when describing methodology
  - Only reference your own publications
Contributions to the Training of HQP

Describe and list:

- Quality and impact of contributions to training during the last six years (2008–2014)
- Proposed plan for future training of HQP in the NSE
- Enhancement of training arising from a collaborative or interdisciplinary environment (where applicable)

Read the Policy and Guidelines on the Assessment of Contributions to Research and Training (PRM)
Contributions to the Training of HQP - Tips

Past Contributions to Training:

- *NEW*: Use an asterisk to identify students who are co-authors on the listed contributions
- Explain any delays that might have affected your ability to train HQP
- Describe nature of HQP studies
  - HQP ranges from undergraduate theses and summer projects to postdoctoral levels
Contributions to the Training of HQP - Tips

Training Plan

- Describe the nature of the training (e.g., length, specific projects) in which HQP will be involved, the HQP’s contributions and pertinence to the research program proposed
- Discuss the training philosophy and the expected outcomes
- Clearly define your role in any collaborative research and planned joint HQP training
PART II

RESEARCH TOOLS AND INSTRUMENTS (RTI) GRANTS PROGRAM
Research Tools and Instruments (RTI) Grants Program

- RTI grants: $7,001 to $150,000 (all disciplines)
  - NSERC accepts applications for equipment whose total net cost between $7,001 and $250,000, provided that funding from other sources is secured by the applicant to bring the amount requested from NSERC to $150,000 or less

- RTI grants for Subatomic Physics (See NSERC website for more details)
  - $150,001 to more than $325,000
RTI Grants Program – Since Fall 2013

- Implemented an application quota so that NSERC receives about 500 applications in total (700 for 2015 competition)
- Universities have been provided with a quota of applications that they can submit to NSERC
  - Consult your university for your particular selection process
  - Applications will have to be approved by the institution in order to be submitted to NSERC
- The quotas to universities is based on the number of NSERC funded researchers supported at each institution, with a minimum quota of two applications
RTI Grants Program
Submitting an Application

- Application to be submitted to NSERC by October 25 - Electronic submission
  - Requires RGO approval - follow institution deadlines

- RTI Grant application includes:
  - Form 101 Application for a Grant
  - Form 100 Personal Data Form for the applicant and all co-applicants
RTI Grants Program
Selection Criteria

- Excellence of the applicant(s)
- Merit of the proposed research program(s)
- Need and urgency for the equipment - including availability of, and access to, similar equipment
- Suitability of the proposed equipment for the proposed research program(s)
- Importance of the equipment for the training of HQP
Research Tools and Instruments
Grants Applications – Tips

- Describe the research program(s) that will be carried out using the equipment
- Explain the need and urgency of the equipment
- Justify the need and appropriateness for each item.
- Illustrate the suitability of the proposed equipment for the research program(s)
- Discuss the importance of the equipment for the training of HQP - quality and opportunities for hands-on training
FINAL ADVICE:
Discovery Grant Applications

- Consult the *Peer Review Manual*, Section 6 (DG)
- Read all instructions carefully and follow presentation standards
- Consult Resource Videos
- Ask colleagues and/or your RGO for comments on your application
- Read other successful proposals
- Plan ahead and check institution deadlines
# NSERC Contacts

<table>
<thead>
<tr>
<th>NSERC Staff</th>
<th>First Name.Last <a href="mailto:Name@nserc-crsng.gc.ca">Name@nserc-crsng.gc.ca</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Deadlines, acknowledgement of applications and results</td>
<td>Your university RGO</td>
</tr>
<tr>
<td>Your account, Grants in Aid of Research Statement of Account (Form 300)</td>
<td>Your university Business Officer (BO)</td>
</tr>
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<td>NSERC Web site</td>
<td><a href="http://www.nserc-crsng.gc.ca">www.nserc-crsng.gc.ca</a></td>
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<td>Discovery Grants Program (including eligibility)</td>
<td>E-mail: <a href="mailto:resgrant@nserc-crsng.gc.ca">resgrant@nserc-crsng.gc.ca</a> Tel.: 613-995-5829</td>
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<td>Use of Grant Funds</td>
<td>E-mail: <a href="mailto:awdad@nserc-crsng.gc.ca">awdad@nserc-crsng.gc.ca</a></td>
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