

Submission to the Long Range Plan Steering Committee

Izabella Luba

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1. According to the just announced 2011 NSERC Discovery Grants statistics, the Discovery Grants in mathematics are by far the lowest among all disciplines funded by NSERC. Average grants in every other disciplines are 70% to 200% higher than in mathematics. This is not acceptable.

(The equipment and materials cost in other disciplines may be higher than in mathematics, but on the other hand, such expenses are often covered by other grant programs. Anecdotal evidence available to me suggests instead that the inequities between the DG grant levels translate into similar inequities between HQP salaries in mathematics and other disciplines. I would be very interested to see this studied systematically.)

2. The government should restore basic research to its central role in science and fund it accordingly, rather than divert funds to narrowly targeted “innovation” programs of little long-term benefit.
3. The allocation of research funding within mathematics should be based on the quality of current and proposed research, not on politics. This means that the current trend of supporting large research groups based more on their size than on scientific merit (“critical mass”, “priority areas”, etc.) needs to be reversed. Such practices reward success in departmental politics, especially hiring battles, and penalize those researchers who actually prefer to focus on their research. Specific examples of this include the following:

(a) The current emphasis on HQP training in the DG competition puts isolated researchers at an unfair disadvantage. (This includes most faculty in small departments and a smaller but significant number in large ones.) A large group is more likely to have established recruitment pipelines, stable funding, advanced graduate courses offered on a regular basis, etc. It is much harder for an isolated researcher to rack up a comparable HQP record.

(b) The PIMS Collaborative Research Groups program is based explicitly on politics. Only sufficiently large groups (usually at least 10 faculty) are eligible to apply, and the geographical and institutional constraints are not compatible with the natural research-driven process of forming collaborations. The program is tailored perfectly to support large and politically influential groups within departments (such as were formed at UBC in accordance with the 2001 academic plan), but others are either excluded from the opportunity or else forced to form artificial and unproductive alliances based on the need for funding.

4. I do not support any community plan that involves naming (and singling out for support) “priority research areas”, in any form, under any circumstances. As good and merit-based as it may sound in theory, in practice it will only lead to a further politicization of mathematics, with the largest groups taking the lion’s share of every available form of funding.

Canadian mathematics is not a world unto itself. “Isolated” researchers need to be supported, not out of charity, but because they’re not necessarily isolated in the greater scheme of things. In addition to having strong research programs, they’re often part of large and vibrant international networks of collaborators, opening up Canadian mathematics to new developments worldwide. Modern mathematics relies increasingly on creative interplay between many diverse areas of research. Focusing on only a few areas (and all but locking everyone else out of the funding system) will lead to stagnation, inertia, increasing isolation from the worldwide mainstream, and ultimately long-term damage to Canadian mathematics.

5. I do not support the “envelope” option where, apparently, individual researchers will have to compete against the institutes for their research grants. The Discovery Grants budget for mathematics should

be (a) higher and (b) actually dedicated to Discovery Grants, rather than subject to clawbacks for the institutes or for any other purposes. The institutes, unlike us, have significant political clout and substantial resources (human and financial) that they can apply towards campaigning. We cannot compete against that. The institutes and the Discovery Grants serve different purposes and are not interchangeable; both are valuable and should be funded, but not at each other's expense.