

# **The Banff International Research Station**

Inaugurated in 2003, the Banff International Research Station for Mathematical Innovation and Discovery (BIRS) is a North American initiative that addresses the imperatives of collaborative research of cross-disciplinary synergy, and of intense and prolonged interactions between scientists. BIRS is a unique infrastructure that provides a creative environment for the exchange of ideas, knowledge, and methods within the mathematical sciences and their vast array of applications.

Unlike any other North American institute, the main mode of operation at BIRS is a series of weekly workshops, each hosting 42 researchers in disciplines in which mathematical, computer, and statistical sciences are used in deep and novel ways. There are 49 such workshops each year. In addition, the Station hosts teams of two to four researchers for periods of two weeks to allow collaborative, distraction-free, research and/or to finish major scientific projects. The setting of the Station has also been ideal for summer schools and graduate summer camps, for hosting focused collaborative research groups, and for promoting university-industry interactions. Every year, the station hosts over 2000 researchers from 400 institutions in more than 30 countries who participate in over 60 different programs.

## **BIRS represents a new level of development in North American scientific cooperation**

It brought together for the very first time: NSERC, the US National Science Foundation (NSF), Alberta Innovation, and Mexico's National Council for Science and Technology (CONACYT) in a partnership of international scale, providing new and exciting opportunities for North American faculty and students giving them access to their international counterparts at the highest levels and across all mathematical disciplines.

### **BIRS embraces all aspects of quantitative research**

BIRS programs span almost every branch of pure, applied, computational and industrial mathematics, statistics, computer science, but also physics, biology, engineering, as well as economics, finance, psychology and scientific writing. The extraordinary response to the opportunities at BIRS leads to extremely high quality competitions with almost 150 proposed activities competing for the 49 available weeks.

### **The broader impact of BIRS**

In addition to the 5-day workshops and the “Research-in-Teams” programs, BIRS has hosted NSF’s Focused Research Groups, Canada's Collaborative Research Teams, Department Chairs meetings and other leadership retreats, gatherings for Women in Mathematics, summer schools in emerging areas, student modelling camps, training sessions for Math Olympiad teams, industrial fora, “ateliers” in scientific writing, and Bridges conferences for Mathematics, Music and Arts. BIRS has led the way in hosting workshops that address science and education issues for aboriginal people.

### **BIRS provides cost-effective access to collaborative research**

The savings incurred by securing dedicated space for long term use, by achieving a substantial economy of scale, and the advantages obtained by pooling the resources of several organizations, the province of Alberta, and three federal governments, allow BIRS to greatly multiply the opportunities for researchers participating in international collaborative research.

### **BIRS is a unique North American institution that requires a suitable review and funding decision process**

As mentioned above, BIRS represents a new level of development in North American scientific cooperation. The partnership between Canada, the US and Mexico, extends to every aspect of the BIRS

governance and operations, including equal representation on the Board of Directors and the Scientific Advisory Panel, as well as in sharing the responsibility of supporting the activities of the Station.

The funding of BIRS is also unique as NSERC, NSF, Alberta Innovation, and CONACYT share the costs of the station. NSERC's contribution to BIRS represents just 27% of its operational budget.

The periodic reviews of the Station are also distinct from any other NSERC-funded initiative. The site visits for BIRS are a collaborative effort between the four granting councils. The first two, in 2001 and in 2006, were led by NSERC, while NSF led the one in 2010. While the four governments receive the same site visit report, they have to date made their funding decisions independently of each other, and not simultaneously. In the past competitions, NSF, Alberta Innovation and CONACYT coordinated their funding announcements, but NSERC's process, via the MFA and now the MRS program, precluded a simultaneous announcement. The effect of such a discrepancy creates confusion for the research communities and our international partners.

A specific recommendation to NSERC through the LRP should be that we need a new flexible mechanism at NSERC where a joint panel representing the four agencies can make the funding decision. The station cannot survive unless all the partners agree on the funding decision, so a joint decision to fund it or not should be required. This should not be difficult since the variations in the BIRS budget between two funding cycles is minimal and is essentially solely driven by the inflation index. As in the past, the station will of course go through international peer review and site visit, evaluated by each funding body using appropriate criteria; the main request is that the timing of the decisions be coordinated across the four agencies.