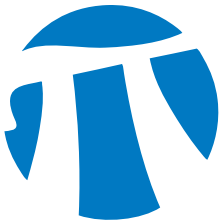

Pacific Institute *for the* Mathematical Sciences

Annual Report *2020*

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ANNUAL PROGRESS REPORT

CTRMS-342044-2014

Pacific Institute for the Mathematical Sciences

January 1–December 31, 2020

I. OVERVIEW OF 2020

1. HIGHLIGHTS

1. **CAIMS-PIMS Coronavirus Modelling Conference:** The mathematical modelling of SARS-Cov-2 infection and the spread of the disease COVID-19 is focusing on two areas. First, to understand and manage the epidemiology of the disease. Second, to study the within-host dynamics of the virus. Tying these two together are those studying the physical transmission characteristics. This conference brought hundreds of researchers together, virtually, to help paint a fuller picture of the activities and to critically discuss alternative approaches. It allowed the researchers to exchange data and expertise, and to connect to governments and the public.
2. **Celebrating Richard Guy:** On March 9, 2020, Dr. Richard Guy, professor emeritus at the University of Calgary passed away at the age of 103. He was an inspirational teacher, colleague, philanthropist, mountaineer and friend. A series of events celebrating Richard, his research and lasting legacy took place October 1-4, 2020. These events included, "The Unsolved Problems Conference: Celebrating the living legacy of the mathematics of Richard Guy", "The life and numbers of Richard K. Guy", and "Mathematical Play in honour of Richard Guy: A day of recreational math for high school students".
3. **bcdata Colloquium:** The bcdata initiative intertwines people from government, industry, universities and not-for-profits toward sharing knowledge and identifying opportunities emerging from the data explosion. Avigilon (a Motorola Solutions Company), PIMS and CANSSI sponsored two networking events in 2020. "Tackling Big Climate Data in the Cloud" was presented by Joe Hamman (US National Center for Atmospheric Research) and "Coronavirus 2019: the math and stats behind the news, and the role of genetic data" was presented by Caroline Colijn (SFU).
4. **Maryam Mirzakhani Day Film Screening (online):** The film "Secrets of the Surface: The Mathematical Vision of Maryam Mirzakhani" examines the life and mathematical work of Maryam Mirzakhani who became a superstar in her field. In 2014, she was both the first woman and the first Iranian to be honoured by mathematics' highest prize, the Fields Medal. Her mathematical colleagues from around the world, as well as former teachers, classmates, and students in Iran today, convey the deep impact of her achievements. Maryam Mirzakhani is an ideal role model for girls looking toward careers in science and mathematics.
5. **Kantorovich Initiative:** This interdisciplinary group focuses on research and dissemination of the mathematics of optimal transport for a wide audience of researchers, students, industry specialists, policy makers and members of the general public. Team leaders are from University of Alberta, University of Washington and the University of British Columbia. 2020 events included the online course Optimal Transport + Economics as well as lectures "Asymptotics of Entropy Regularized Optimal Transport via Chaos Decomposition" and "Introduction to Stochastics Portfolio Theory".

2. WHAT'S NEW

- **Thomas Hillen became Site Director at the University of Alberta**. Allen Herman became Site Director at the University of Regina. Weiran Sun became Site Director at Simon Fraser University.
- **PIMS welcomed CNRS visitor Tahar Boulmezaoud to the University of Victoria.**
- **Athabasca University joined PIMS as an affiliate member.**
- **Math^Industry:** Developed by PIMS and launched in August 2020, Math^Industry (Math to power industry) is a professional development school positioned to benefit the Canadian economy and industry while linking highly trained personnel to industry jobs. The program starts with a training bootcamp (software best practices, coding, business, communications, project management) taught by experts from PIMS and Mitacs. Industry partners then submit math problems for group collaborations with industry and faculty. Industry partners in 2020 included:

Aerium Analytics, Inc., ATCO Ltd. and The Divi Project The problems were varied and included: optimization of employee working schedule amid COVID-19; traffic monitoring with distributed acoustic sensing; compressing the transaction data of blockchain.

- **PIMS Network-Wide Graduate Online Courses:** In the fall of 2020 PIMS offered graduate online courses to the PIMS Network. Students from PIMS member universities were able to register for these courses through the Western Dean's Agreement. Courses included: Process-Based Hydrological Modelling; Graph Theory; Mathematical Modelling of Complex Fluids; and Optimal Transport + X.
- **Emergent Research:** PIMS Postdoctoral Seminar Series: PIMS launched an ongoing seminar series featuring current postdoctoral fellows. Held every three weeks, our PIMS postdoctoral fellows have had the opportunity to showcase their emerging research.
- **BC Covid-19 Modelling Group:** This interdisciplinary and multi-university group is focused on rapid response modelling of the COVID-19 pandemic, with a focus on British Columbia and Canada. The team at PIMS is supporting this project with digital collaboration tools and workflows, logistics, and internal and public-facing communications.
- **Collaborative Research Group on Quantum Topology and its Applications (quanTA):** quanTA brings together a unique and energetic team consisting of specialists in condensed matter physics and topological superconductivity, algebraic topology, algebraic and differential geometry, integrable systems, and quantum technologies, all drawn from the Prairie universities and institutes. In 2020, this group appointed 2 postdoctoral fellows, ran a seminar series and hosted Qoloquium: A One-Day Conference on Quivers, Representations, Resolutions.
- **Collaborative Research Group on Novel Techniques in Low Dimension-Floer Homology, representation theory and algebraic topology:** In 2020, this group ran the Topology Seminar Series, and Cascade Topology Seminar.
- **Remote Team Collaboration:** PIMS supported collaboration by remote teams in new ways over the past year. A collection of technologies (cloud-hosted Jupyter, semisynchronous team communications via Slack and Microsoft Teams, agile software development via GitHub, team managed web spaces with continuous integration and draft publishing support, synchronous team communications via Zoom) were integrated and deployed to support teams working on COVID-19 modelling, optimal transportation, and quantum topology. This suite of integrated tools was also deployed to support the 2020 Math^Industry. These innovations build on state-of-the-art ideas in open science, reproducibility in research, research data management, and agile software development.
- **#ShutDownSTEM:** On June 10 we stepped away from our daily tasks to educate ourselves about racism against Indigenous, Black and other minorities in Canada. Like many colonized structures, academia is a system that sustains racism, from targeting people, to suppressing their voices. We must continue to learn how we can work together to create lasting change.

3. PROGRAMS, ACTIVITIES AND NUMBER OF USERS

PIMS has built an international reputation for excellence and has transformed the conditions of mathematical research in Canada. PIMS funds Collaborative Research Groups and Postdoctoral Fellowships, as well as individual events on a competitive basis. In 2020, most of our events were hosted virtually in response to the pandemic.

- **Collaborative Research Groups:** Collaborative Research Groups (CRGs) consist of researchers sharing a common interest and desire to collaborate in developing their research programs for 3-4 years. Groups organize focus periods, workshops, summer schools, seminars and other events and they also make joint postdoctoral fellowship (PDF) appointments. CRGs are designed to promote and support long-term, multi-event, multi-site coordinated activities.

- **Conferences and Workshops:** PIMS organizes and funds a variety of meetings around the world each year. These range from small one-day workshops to multi-week conferences involving hundreds of participants. PIMS also hosts or cosponsors various meetings by professional societies. During the pandemic, we worked closely with our event organizers to help them adapt and find the best arrangements for their events.
- **Summer Schools:** Every year PIMS runs a number of topical summer schools. They are intended to educate graduate students and early career researchers on current developments. In 2020, the Online Open Probability School (OOPS) provided the opportunity to access high level presentations on a variety of probability topics.
- **Lecture and Seminar Series:** PIMS supports various seminar series at member universities and industrial centres throughout the year. Some of these are for specialists, while others are geared towards the general public. In 2020, PIMS helped seminar organizers move their events online and provided additional exposure for their events through our video service mathtube.org.
- **PIMS Syzygy Platform:** PIMS provides a platform called syzygy where people can build Jupyter notebooks which combine code, text, equations, images and videos to produce compelling narratives in their browsers. PIMS, Compute Canada and Cybera collaborated to create the syzygy service which is used to provide computational infrastructure for PIMS events and is also widely available at over 25 Canadian universities. People at these universities can use syzygy to create notebooks supporting their teaching or research, and can easily share them with colleagues. To date, the syzygy platform has been used by over 40,000 people.
- **Federal Cancode Grant:** The Callysto project, launched by PIMS and Cybera, is closely related to Syzygy. It is an all-in-one educational program, combining a computational platform with curriculum-based learning and skill development materials, all accessible from any device with an internet connection. An important component of the Callysto project is the partnership between higher education and the K-12 community, which produces a rich library of open-access materials for teaching computational learning. By using a train-the-trainers approach, PIMS and Cybera have introduced Callysto to nearly 45,000 students and teachers. In 2020 Callysto hosted three free hackathons for students in grades 9-12, launched a new online data science course for teachers and created pre-made lessons teachers can use in their classrooms. We also ran a "Callysto for Teachers" workshop at our Changing the Culture event.
- **Network-Wide Graduate Online Courses:** These courses utilize the PIMS network to deliver a rich variety of graduate level courses in the mathematical sciences to PIMS member universities. This program benefits instructors by reaching a larger potential audience and students by offering a broader variety of courses. 36 students took these courses in Fall 2020.

Activity	2018		2019		2020		2021	
	Activities	Users	Activities	Users	Activities	Users	Activities	Users
Conferences/Workshops	42	4,294	43	3,391	13	1,464	20	2,500
Summer Schools	4	198	3	142	1	25	4	100
Collaborative Research Groups	6		3		3		4	
Lecture-Seminar Series	37	1,285	29	1,143	30	1,479	30	1500
Industrial Activities	6	217	2	190	5	417	3	350
Syzygy	11	13,750	18	25,000		40,000		45,000
Callysto	82	24,206	26	20,223	26	26,000	10	17,300
Other	7	960	8	898	12	687	15	900

II. ACCESS TO THE RESOURCE

1. COMMUNICATIONS PLAN

Objectives and Communication Priorities:

Build a consistent communications framework to raise the profile of PIMS in the global scientific community. Demonstrate to existing and potential sponsors, as well as the global scientific community, that PIMS has given thought and priority to communicating with them. Make education a top priority in terms of awareness, program organization and fundraising. Build the PIMS community through regular, consistent and targeted formal and informal communications.

Key Messages:

PIMS is a leading mathematical institute in North America, with worldwide influence on research and industry. It has established innovative programs which continue to have a transformative impact on the mathematical sciences and the training of HQP. The PIMS community is inclusive: From K-12 to research faculty, we strive to provide the best environment for nurturing mathematical talent. PIMS' distributed structure enables our community to engage locally while benefiting from the full extent of the PIMS network. PIMS is nurturing the pipeline of younger generations in Western Canada, including those with Aboriginal backgrounds. We promote numeracy as an integral part of development and learning. PIMS encourages and promotes diversity in mathematics.

Strategies:

Create and manage the consistency, clarity and regularity of communications. Be proactive and opportunistic when promoting PIMS to stakeholders. Understand their needs and preferences and share information accordingly. Add a more human touch by creating and telling stories that create engagement. This is done through photos, personal stories and testimonials. Increase internal and external community building opportunities.

Tools:

- **PIMS website:** Offers easy access to information on all PIMS activities, recent news and resources. In 2021, this site is being refreshed to provide a richer experience for the PIMS community.
- **Mathtube.org:** Is a dedicated resource which increases the global exposure of PIMS by archiving and publishing recordings of our events. Videos and other media are indexed and searchable on mathtube.org for people to experience past PIMS activities. In 2020 we added 108 videos to the collection, more than three times the number in 2019. We also had almost triple the viewers in 2020 compared to 2019.
- **PIMS Connection, monthly e-newsletter:** This brief email highlights upcoming events, updates and new items. Its circulation is over 4,800.
- **Social media:** PIMS uses Twitter, Facebook, LinkedIn and Medium to connect with and provide all of our updates and news to the PIMS community. Our posts cover a range of content from event photo highlights to weekly event updates and more.
- **Pi in the Sky:** Is a publication aimed at high-school students and teachers, with the main goal of providing a cultural landscape for mathematics. It has a natural extension to junior high school students and undergraduates, with articles that put curriculum topics in a different context. Pi in the sky is produced once a year and mailed to various institutes and private subscriptions throughout Canada and the world (estimated circulation is 1,700) and can be downloaded from the PIMS website: pims.math.ca/resources/publications/pi-sky.
- **Advertising:** PIMS-funded events and opportunities are advertised both electronically and in print. We advertise through websites and publications at institutions such as AMS, CMS, and SIAM and by offering custom-designed event posters that are distributed to the major mathematical departments and institutes in Canada and the US. We also produce an annual poster highlighting all of PIMS main events for the year, which is distributed to over 200 of the top scientific institutions worldwide.

- **Reports**: Conference proceedings, abstracts, lecture notes, websites and final event reports are all made available for download from the PIMS website. (See pims.math.ca). Conference materials are attached to the corresponding event, which are listed chronologically and are searchable by keyword for ease of access. PIMS also produces an annual report which can be viewed at pims.math.ca/resources/publications/annual-reports.
- **Open Source:** PIMS shares the source code for as many of our projects as possible, including all of the infrastructure for the syzygy.ca and callysto.ca projects. The educational resources developed as part of the Callysto project are also shared openly on GitHub.
- **Audio/Video Facilities:** PIMS offers seminar organizers and affiliated researchers a selection of technologies and support to help them include participants at remote sites. The selection includes traditional videoconferencing as well as software-based alternatives such as BlueJeans, Teams and Zoom. PIMS has created a dedicated "presentation studio" at the UBC site which can be used for giving lectures or pre-recording talks. We are exploring adding more of these facilities throughout the PIMS network.

2. EQUITY, DIVERSITY, AND INCLUSIVITY (EDI)

We are currently auditing all of our programs from an EDI perspective. One of our largest institute expenditures is the postdoctoral fellow program. This program plays an important role in the shaping of future faculty membership, and hence thoughtful demographic representation for PIMS PDFs is important. Historically, we have observed a low participation rate of women which has remained flat at around 10% over 25 years. This has lead to a restructuring of the candidate evaluation procedures. The 2020 cohort was 17% women. The 2021 cohort will be 30% women which is far closer to female representation in the elite doctoral pool. Representation of other equity seeking groups is under study hindered by the lack of historical data. We are working with the UBC equity and inclusion office to revamp our intake survey to better track our actions.

We have built an EDI committee from faculty members who are not already Site Directors, which has created a new channel for feedback and ideas. Current projects include a code of conduct, a PIMS EDI policy document, outreach to indigenous communities, in addition to other public awareness events. We would like to assist in a national discussion of how mathematical sciences can be more inclusive and diverse.

III. CONTRIBUTIONS TO RESEARCH

More information about PIMS can be obtained under "PIMS News/Press" at pims.math.ca and in our annual report at www.pims.math.ca/resources/publications/annual-reports

IV. DISTRIBUTION OF USERS*

In 2020, the total number of attendees was 4,072. This is lower than in 2019 due to the cancellation or postponement of many conferences/workshops.

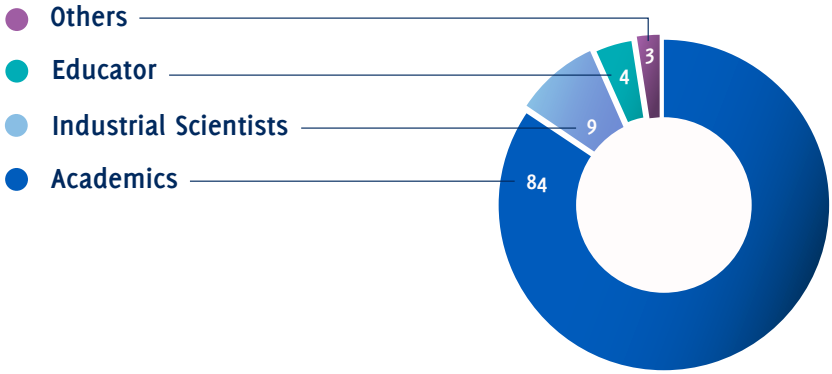
86% were from Canadian institutions, of which:

- 22% were from Alberta
- 48% were from British Columbia
- 10% were from Manitoba
- 1% were from Atlantic Provinces
- 5% were from Ontario and Quebec, and
- 14% were from Saskatchewan

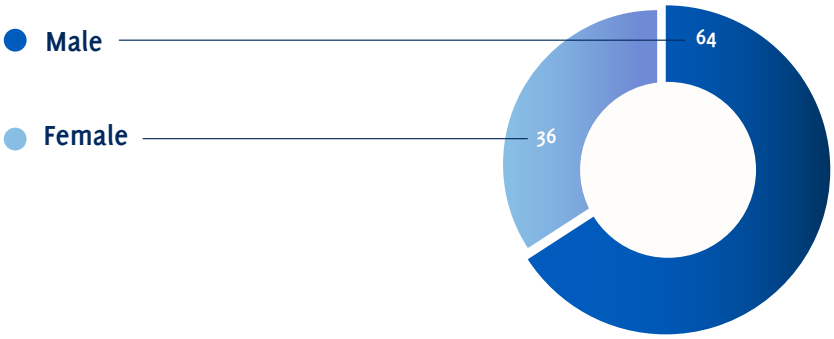
6% were from North American institutions, and

8% were from elsewhere.

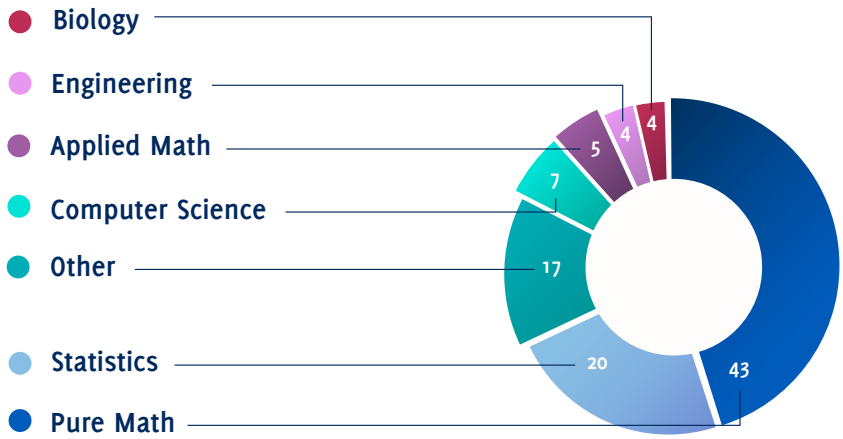
ATTENDEE SECTOR DEMOGRAPHICS



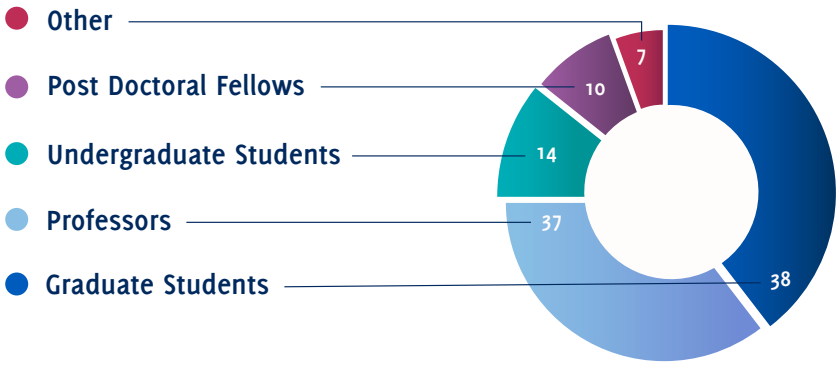
ATTENDEE GENDER DEMOGRAPHICS



SUBJECT MATTER



ACADEMIC ATTENDEE DEMOGRAPHICS



*The distribution of users reported here does not include the syzygy.ca or Callysto projects.

V. TRAINING AND DEVELOPMENT OF HIGHLY QUALIFIED PERSONNEL

1. POSTDOCTORAL FELLOWS & CNRS/PIMS SCIENTISTS

The Postdoctoral Fellow program (PDF) is one of PIMS most important operations. In 2020 we sponsored 44 new PDFs (40 in 2019 and 41 in 2018) distributed throughout the PIMS sites on a competitive basis. These PDFs are vital in building new research programs at and between PIMS sites and many go on to become faculty members at leading Canadian universities. Candidates associated with a CRG are inducted into the appropriate research group and candidates from institutions in France are also eligible for PIMS/CNRS fellowships. PIMS PDFs receive $25,000 per year from PIMS in salary and this amount must be matched by the site. Fellowships are for 2-3 years. PIMS Central holds yearly one-day workshops on professional development topics such as Postdoc/Grad Student Job Forum. PIMS also hosts Emergent Research: PIMS Postdoctoral Seminar Series.

VI. PARTNERSHIPS AND OUTREACH

1. NATIONAL

PIMS has a national mandate to support the mathematical sciences in Canada. In partnership with the Fields Institute (FI) and the Centre de Recherches Mathematiques (CRM), it has created major national programs such as the Atlantic Association of Research in the Mathematical Sciences (AARMS). Together with the Mathematical Sciences Research Institute (MSRI), PIMS also created the Banff International Research Station (BIRS) which is now the premier mathematical research station in North America.

PIMS coordinates with AARMS, BIRS, CRM and Fields to support Canadian activities such as meetings of the societies (CAIMS, CMS and SSC), and the Seminaire de Mathematiques Superieres in Montreal. PIMS and the other institutes commit significant resources to support the Canadian Statistical Sciences Institute (CANSSI).

PIMS and Mitacs, a national not-for-profit research and training organization, have partnered to help graduate and postdoctoral researchers solve challenges using mathematical sciences in collaboration with industry and not-for profit organizations. Through internships, companies in Western Canada have access to leading mathematical scientists in order to support the development of technologies and services in all sectors. Graduate students and postdoctoral fellows have opportunities to transfer their skills from theory to real-world application, while companies gain competitive advantages by accessing high-quality research expertise.

2. INTERNATIONAL

Part of the PIMS mandate is to establish international partnerships in order to provide mechanisms for Canadian researchers to participate in activities outside Canada and attract visitors from abroad. The establishment of the Centre National de la Recherche Scientifique (CNRS) International Research Lab at PIMS (the first in mathematics in North America) has led to year-long visits by more than 40 researchers from France since 2007, fully funded by CNRS. Similarly, the leadership role played by PIMS in establishing the Pacific Rim Mathematical Association (PRIMA) provides ample opportunities for Canadian exchanges with countries in this region. PIMS will host the next PRIMA Congress in Vancouver in 2021. The PIMS-Germany collaboration and PIMS-Europe Fellowships are currently paused due to the pandemic.

The PIMS-Globalink Student Mobility Program, in partnership with Mitacs, supports visits by students from Mitacs partner countries to carry out research at PIMS member universities and for Canadian students from PIMS member universities, to study in Mitacs partner countries. This award provides CAD $6,000 for senior undergraduates, graduate students and postdoctoral fellows to conduct 12-24 week research projects in the host country.

3. EDUCATION AND OUTREACH

PIMS vigorously pursues our mandate to promote mathematics in Canada at all levels; and our mission to train current and future generations of teachers, scientists and engineers for success. We have many active educational outreach programs including Math Circles and Math Mania which seek to convey the excitement of discovery and learning in mathematics and which bring together students, teachers and parents to learn. We also engage through Science Fairs and other activities. PIMS strongly advocates for the participation of people from all backgrounds in mathematics and we have developed partnerships with First Nations schools and schools with a substantial percentage of Indigenous students. These activities include summer camps for students and specialized teacher training sessions.

Many teachers, especially in elementary schools, do not have the necessary knowledge or experience to feel comfortable teaching mathematics. To address this, PIMS developed a 4-week Summer School for in-service teachers. The goal is to create teams of teachers, within schools, which can foster a cultural and academic shift in the learning and enjoyment of mathematics.

Colleges and universities within the Western Canada post-secondary systems that do not qualify for regular membership in PIMS may become PIMS Education Associates. The PIMS educational network allows for the exchange of successful practices in outreach, teaching, and professional development amongst its members. Currently PIMS has 17 educational associates.

VII. CONSULTATION MECHANISMS AND COLLABORATIVE ACTIVITIES WITH AARMS AND CANSSI

As part of a national mandate, PIMS supports mathematical activities in the Maritime Provinces in conjunction with the Atlantic Association for Research in the Mathematical Sciences (AARMS). Together they co-sponsored the following activities in 2020 (PIMS' financial contribution to each activity is listed in parentheses):

- Workshop on Numerical Analysis of Singularly Perturbed Differential Equations (at Memorial University of Newfoundland ($460)
- Postdoctoral Fellow ($24,054) and Administrator ($8,435)

PIMS also supports statistical activities throughout Canada through CANSSI. In 2020 these included Postdoctoral Fellows and Research Assistants.

VIII. MANAGEMENT AND BUDGETS

PIMS CTRMS NSERC Activity Report Jan. 1 to Dec. 31, 2020

	Use of the resource (i.e. PIMS) Paid from ALL revenue sources Jan. 1 to Dec. 31, 2020	Planned use of CTRMS funds Jan. 1 to Dec. 31, 2021
Resource Expenditures		
1) Salaries & Benefits		
a) Administrative Staff	507,535	
b) Directors & Site Directors Teaching Releases/Stipends	98,468	
c) Scientific Support Personnel	208,344	185,000
d) Postdoctoral Fellows (inc. CRG PDFs)	579,972	659,422
e) Technical/Professional Assistants (inc. Education)	8,938	
f) Graduate Students	0	
2) Equipment or Facility		
a) Purchase or Rental (including class renovation)	100,311	
b) Operation and Maintenance Costs	20,692	
3) Materials & Supplies		
a) Office supplies and expenses	6,465	
4) Meetings/Collaborations/Misc. Travel		
a) PIMS Meetings (SRP, PDF, Board, Admin, Exec)	10,710	
b) Staff/PDF/Prize Winner/misc. travel	23,841	
c) Director Research Support and Scientific Consultation	32,340	
5) Dissemination Costs		
a) Publication Costs	1,129	
b) Advertising & Networking	6,780	
6) Scientific Activities (inc. CRGs and IGTC)		
a) Conferences/Symposia	25,381	47,471
b) Summer Schools	6,842	12,500
c) Workshops/Seminars/Colloquia	35,243	64,000
d) Distinguished Visitors/Chairs/Speakers	17,995	33,000
7) Education Initiatives		
a) General activities	10,473	
b) Callysto	75,546	
8) AARMS Activities		43,000
a) Workshop	460	
b) PDF	24,054	
c) Administrator	8,435	
9) CANSSI		219,900
a) Postdoctoral fellow/Research Assistants	307,595	
TOTAL EXPENDITURES	**2,117,549**	**1,264,293**

Resource Revenues ***(collected during the period Jan. 1 to Dec. 31, 2020)***

a)	User Fees (Registration Fees collected)		-3,132
b)	Contributions from Partner Universities		
		UBC	332,234
		Simon Fraser University	80,000
		University of Alberta	77,700
		University of Calgary	67,710
		University of Victoria	66,600
		University of Saskatchewan	50,000
		University of Regina	35,000
		University of Washington	15,244
		University of Lethbridge	35,000
		University of Manitoba	50,000
		Portland State University	5,193
		Athabasca University	5,000
		UNBC	5,000
c)	Private Donations		300
d)	Other Contributions		
		UV Various Depts	3,049
		UM Contribution to Banach Algebra	10,000
		UBC Various Depts	26,016
		Other Miscellaneous	37,824
e)	Callysto Grant		141,051
f)	NSERC CTRMS Grant/Supplement		1,466,580
g)	Carried Forward from Dec. 31, 2019		989,032
	TOTAL REVENUES (Jan. 1 to Dec. 31, 2020)		**3,495,401**
		Revenue less Expenses	**1,377,852**

GLOSSARY OF ACRONYMS

PIMS	Pacific Institute for the Mathematical Sciences
AARMS	Atlantic Association of Research in the Mathematical Sciences
AMS	American Mathematical Society
BIRS	Banff International Research Station
CAIMS	Canadian Applied and Industrial Mathematics Society
CANSII	Canadian Statistical Sciences Institute
CMS	Canadian Mathematical Society
CNRS	Centre National de la Recherche Scientifique
CRG	Collaborative Research Group
CRM	Centre de Recherches Mathématiques
EDI	Equity, Diversity and Inclusivity
IMA	Institute for Mathematics and its Applications
IPSW	Industrial Problem Solving Workshop
MMIW	Mathematical Modeling in Industry Workshops
MSI	Mathematical Sciences Institute
MSRI	Mathematical Sciences Research Institute
NSERC	National Sciences and Engineering Research Council
PDF	Postdoctoral Fellow
PRIMA	Pacific Rim Mathematical Association
PSU	Portland State University
PTCS	PIMS Postdoctoral Training Centre in Stochastics
SFU	Simon Fraser University
SFU-V	Simon Fraser University-Vancouver
SIAM	Society for Industrial and Applied Mathematics
SRP	Scientific Review Panel
SSC	Statistical Society of Canada
UA	University of Alberta
UBC	University of British Columbia
UBC-O	University of British Columbia–Okanagan
UC	University of Calgary
UL	University of Lethbridge
UM	University of Manitoba
UR	University of Regina
US	University of Saskatchewan
UV	University of Victoria
UW	University of Washington