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 8888 University Drive  
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## MEMORANDUM

ATTENTION: Senate

TEL

FROM: Peter Keller, Vice-President, Academic and Provost, and Chair, SCUP

RE: Establishment of the Canadian ATLAS Tier 1 Data Centre (SCUP 17-16)

A handwritten signature in blue ink, appearing to read "Peter Keller".

DATE: March 9, 2017

TIME

At its March 8, 2017 meeting, SCUP reviewed and approved the establishment of the Canadian ATLAS Tier 1 Data Centre as a research institute for a five-year term.

**Motion:**

That Senate approve the establishment of the Canadian ATLAS Tier 1 Data Centre as a research institute for a five-year term.

c: M. Vetterli

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**MEMORANDUM**

**ATTENTION** Peter Keller, Chair, Senate Committee on University  
Planning (SCUP)

**FROM** Norbert Haunerland, Associate Vice-President, Research

**RE:** **Canadian ATLAS Tier 1 Data Centre Research Institute**

**DATE** January 12, 2017

**PAGES** 1

Attached is a proposal from Dr. Michel Vetterli for the establishment of the Canadian ATLAS Tier 1 Data Centre as a Research Institute at SFU. Dr. Vetterli is a Professor of Physics, with a joint appointment at TRIUMF, Canada's national laboratory for particle and nuclear physics and accelerator-based science. There are 10 ATLAS Tier-1 hubs worldwide, including one in Canada which is currently housed at TRIUMF. The Canadian Tier-1 centre is currently run by a consortium of 9 Canadian universities, with SFU as the lead institution. As part of the national program to consolidate academic high-performance computing in a limited number of sites, the ATLAS-Canada Tier-1 centre will move from TRIUMF to SFU's Burnaby campus. The establishment of the Canadian ATLAS Tier 1 Data Centre as an SFU Research Institute would strengthen SFU's research lead in Big Data, which is a strategic research priority at SFU.

I recommend approval of the establishment of the Canadian ATLAS Tier 1 Data Centre Research Institute according to Policy 40.01. Once approved by SCUP, the proposal should be sent to Senate for approval.

## Motion:

That SCUP approves the Canadian ATLAS Tier 1 Data Centre as a Research Institute for a 5-year term.

Attachment: (1)

c. Dr. Michel Vetterli, Professor, Department of Physics

**Proposal for the establishment of the  
Canadian ATLAS Tier 1 Data Centre**

**as a RESEARCH INSTITUTE at Simon Fraser University**

**1. Purpose**

The ATLAS experiment at the Large Hadron Collider (LHC) in Geneva is designed to study matter at the smallest distance scales and to provide insights into fundamental questions of Nature, such as “what is mass?” It is one of the largest science projects in the world and the resulting discoveries have a profound effect on our understanding of the world around us. The discovery by ATLAS of the Higgs Boson, which plays a central role in the mechanism by which subatomic particles attain mass, led to the award of the 2013 Nobel Prize in physics to Higgs and Englert.

The ATLAS experiment cannot succeed without an enormous computing infrastructure to allow physicists to manage, process, and analyze data. The Worldwide LHC Computing Grid (WLCG) is a system of almost 200 high-performance computing centres in 42 countries connected by high-speed networks. Grid “middleware” is used to coordinate the use of these centres in the most efficient way possible, effectively making them appear as one large system to researchers. There are 10 ATLAS Tier-1 hubs worldwide, including one in Canada which is currently housed at TRIUMF. The Canadian Tier-1 centre, originally funded by a \$20M Exceptional Opportunities Grant from the Canada Foundation for Innovation (CFI) and the British Columbia Knowledge Development Fund (BCKDF), is run by a consortium of 9 Canadian universities, with SFU as the lead institution.

As part of the national program to consolidate academic high-performance computing in a limited number of sites, the ATLAS-Canada Tier-1 centre will move from TRIUMF to SFU's Burnaby campus. Following the CFI Cyberinfrastructure Competition, SFU was recently (2015) awarded \$30M in funding from CFI and nearly \$12M from BCKDF to invest in a new generation of computational and data infrastructure to serve the needs of Canadian researchers. One of the four national Compute Canada (CC) sites will be at SFU. Relocating the Tier-1 Centre at SFU Burnaby will not only save money on infrastructure and operation, but will also enhance the transfer of knowledge between Compute Canada and ATLAS personnel, in particular in the area of Big Data, which is a stated priority in SFU's 2016-2020 Strategic Research Plan. The new combined facility will be a recognized national centre of excellence in ICT-based research, in particular in storing and analyzing Big Data. Although the ATLAS Tier-1 Data Centre will be integrated in the Compute Canada Data Centre at SFU, funding for infrastructure renewal and expansion has to be obtained independently. SFU has recently submitted an Innovation Fund grant request to CFI and BCKDF.

Given the involvement of Compute Canada at this stage, the partner universities' roles and contributions will significantly decrease. While TRIUMF has committed to continue paying the salaries of the Tier-1 staff until the end of the laboratory's 5-year plan in 2020, it will no longer be responsible for the management of the Tier-1 centre. It is therefore necessary to establish a formal Research Institute at SFU that is charged with the oversight of the Tier-1 centre, coordinates the upcoming infrastructure renewal, and assures that its performance level is maintained at the same level as previously. The original Tier-1 Data Centre had a formal, albeit lightweight management structure that included a Management Board with members from all

ATLAS universities. This board met less frequently as the operation of the centre became routine. Given the changes in the funding structure and levels of involvement, and given the lessons learned from the previous board, a new operating and management structure is needed to ensure the efficiency of the operations and the sustainability of the centre, as outlined below.

## **2 Governance**

2.1 The Canadian ATLAS Tier-1 Centre is constituted as a Research Institute at Simon Fraser University under the terms of SFU Policy R 40.01. It comes under the direct authority of the Vice President Research and conducts its affairs in accordance with all other University policies. The term of the Institute is five years as per SFU Policy R 40.01.

2.2 The ATLAS-Canada computing management group, which oversees ATLAS Computing in Canada, will act as an *Advisory Board* and will meet *ad hoc* to discuss policy issues and changes. In addition, a new *Oversight Group* will be formed and will include senior representatives from ATLAS, SFU, TRIUMF and Compute Canada.

2.3 An annual report on the Institute's activities and financial status from April 1 to March 31, including the current membership of the Institute and *Oversight Group* and *Advisory Board*, will be submitted to the Vice-President Research by June 30th of each year.

2.4 The Director of the Institute will be appointed by the Vice President Research and serve a renewable three-year term. The Director will normally be the Project Leader of the CFI Innovation Fund Project and report to the Vice President, Research. The Project Leader currently is Michel Vetterli, Professor of Physics at SFU, with a joint appointment at TRIUMF.

2.5 The Director will be responsible for planning, as well as design/purchasing and funding of the ATLAS Tier 1 centre. The Director of the Institute will be supported by a Director of Operations (currently R. Tafirout<sup>1</sup>, TRIUMF) who will be responsible for the day-to-day operation of the Tier-1 Centre, including the design and development of new systems. The Director of the Institute and the Director of Operations also serve on several ATLAS computing and WLCG committees to fully integrate Canada into these organizations.

## **3. Funding:**

3.1 The activities of the institute will be primarily funded by awards from the CFI Innovation Fund, Infrastructure Operating Funds, as well as the associated contributions by TRIUMF and SFU.

3.2 In the future, additional funding will be sought through the Major Science Initiative Award granted to Compute Canada

3.3 The VP research will provide a stipend for the Director the Institute.

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<sup>1</sup>R. Tafirout is also the Computing Coordinator for ATLAS-Canada, a position previously held by M. Vetterli, so that there is a coherent picture of computing management in the collaboration.

SFU Connect

khung@sfu.ca

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**Library Report: Canadian ATLAS Tier 1 Data Centre Research Institute**

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**From :** Megan Crouch <mcrouch@sfu.ca> Fri, Feb 10, 2017 01:07 PM  
**Subject :** Library Report: Canadian ATLAS Tier 1 Data Centre  
Research Institute  
**To :** Karen Hung <khung@sfu.ca>  
**Cc :** morgan mameni <morgan\_mameni@sfu.ca>

Dear Karen,

I've reviewed the proposal for the Canadian ATLAS Tier 1 Data Centre Research Institute.

No additional library resources will be required to support it.

**This email will serve as your record that the Library has conducted the assessment of the proposal as it moves through the approval process.** Once the Institute has been approved, it will appear on this list:

<http://www.lib.sfu.ca/about/overview/collections/course-assessments/other>

Please let me know if you have any questions.

Best,  
Megan

Megan Crouch  
Collections Librarian  
Simon Fraser University Library  
Tel: 778.782.4962

**\*\*I am on campus Tuesday through Friday until 2pm, and work from home on Mondays\*\***

On 02-10-2017, at 11:20 AM, Karen Hung <khung@sfu.ca> wrote:

Hi Megan,

Please find the attached documents for the creation of ATLAS Tier 1 Data Centre for your review and assessment.

If you have any questions please don't hesitate to contact myself or Morgan.

Kind Regards,  
Karen Hung, CPA, CGA  
Associate Director, Finance  
Simon Fraser University  
Office of the VP, Research  
778-782-4370