2017 International Conference on Preconditioning Techniques for Scientific & Industrial Applications



Getting Started



Get connected: The "eduroam" network is available at UBC. Another option is the "ubcvisitor" network. Open up a web browser, and you will be directed to the login page.

FAQs

Q: Where are the sessions?

- Plenary sessions, except the morning plenary of Day 2, will be in the Forest Sciences Centre (FSC) Room 1005. The Tuesday morning plenary will be in the Pharmaceutical Sciences Building (PHRM) Room 1101.
- Breakout sessions, except the morning sessions of Day 2, will be in FSC 1005, 1001, and 1613. The Tuesday morning sessions will be in PHRM
 1101, 1201, and 3208.
- You will find a copy of the building floors and a campus map at the end of the program.

Q: Will the program change? Program changes and updates will be announced during the conference, as necessary.

Q: Where can I go for help on site? If you need assistance or have a question during the conference, please feel free to talk to Chen Greif or Jessica Bosch.

Q: Where can I get refreshments and meals? For snacks or quick meals, visit http://www.food.ubc.ca/feed-me/ or our website http://www.cs.ubc.ca/~greif/precon17/map.html. Coffee breaks are provided each day of the conference.

Q: Where can I get a cab to pick me up from the Venue? You can call Yellow Cab (604-681-1111) and request to be picked up at the intersection of Main Mall and Agronomy Road.

Q: How can I get around?

- UBC Map link: maps.ubc.ca/
- Public Transit: Feel free to search and plan your public transport rides by visiting http://www.translink.ca/, where directions, ticket costs and bus schedules are indicated.
- Parking at UBC: http://www.parking.ubc.ca/visitor.html

Q: What are the optional socials outside conference hours?

- **Fireworks:** There are fireworks starting at 10pm on July 29, August 2, and August 5. Please visit http://hondacelebrationoflight.com/ for details. For other good spots visit http://dailyhive.com/vancouver/places-to-watch-celebration-of-light-fireworks.
- City Running Tour: This 7km sightseeing tour starts on July 30, at 9:30am at the main entrance of Opus Hotel, 322 Davie Street. If you wish to register, please click here and choose the date & time July 30th, 9:30am. On the payment page, redeem the promo code 'precon17' which gives you a \$10 discount, for a total of \$30 (CAD) after discount.

Q: What emergency numbers should I know?

- Campus Security (604-822-2222);
- General Emergencies (911);
- UBC Hospital (604-822-7121).

There will be photography throughout this event for promotional purposes for use by UBC. If, for any reason, you wish not to have your photo taken or used in this manner, please contact Chen Greif or Jessica Bosch.

Monday July 31, 2017

07:30 - 08:15 Registration (FSC Atrium)
08:15 - 08:30 Opening Remarks: Chen Greif (FSC 1005)
08:30 - 09:15 Plenary: Michele Benzi (FSC 1005, Chair: Chen Greif)
Iterative Solution of Double Saddle Point Problems
09:15 - 09:45 Coffee Break (FSC Atrium)
09:45 - 11:45 Parallel Sessions:

	Mini 1: Block Preconditioning, Part I	Mini 2: Preconditioning Methods and Theory Based on Matrix Splitting Itera-	Hierarchical and Multilevel Methods
	Room: FSC 1005 Chair: Andy Wathen	tions Room: FSC 1001	Room: FSC 1613 Chair: Geoffrey Dillon
	Chair: Anuy Walnen	Chair: Zeng-Qi Wang	Chair: Geomey Dillon
09:45-10:15	Michael Wathen An Approximate Inverse-Based Preconditioner for Incompressible Magnetohydrodynamics	Zhengda Huang On the Analysis of the HSS Method in Solving Partial Differential Equation	Geoffrey Dillon A Hierarchical Low-Rank Schur Complement Preconditioner for Nonsymmetric Linear Systems
10:15-10:45	Edward Phillips Block Preconditioning Approaches to Physics-Compatible Electromagnetics and Plasma Simulations	Hao Liu Newton-PCG Method for Solving Chandrasekhar's H-Equation	Yuval Harness Efficient Strong Hierarchical Matrix Preconditioning Strategies for Large Scale Elliptic Boundary Value Problems
10:45-11:15	Hisham bin Zubair Syed Multigrid Preconditioning Techniques for Geophysical Electromagnetics	Xi Yang A Relaxed Generalized-PSS Preconditioner for a System of Steady Incompressible Navier-Stokes Equations	Andrea Franceschini A Robust Multilevel Approximate Inverse Preconditioner for Symmetric Positive Definite Matrices
11:15-11:45	Daniel Szyld Multipreconditioned GMRES for Shifted Systems	Jun-Feng Yin On MHSS Iteration Method for the Space Fractional Coupled Nonlinear Schrödinger Equations	

11:45 - 13:30	Lunch Break	
13:30 - 14:15	Plenary: Tom B. Jönsthövel (FSC 1005, Chair: Andy Wathen)	
	Taming the Many-Core Beast: a View from Industry on Impact of Changing Architectures on Preconditioner Design	
14:15 - 15:00	Plenary: Sander Rhebergen (FSC 1005, Chair: Andy Wathen)	
	Preconditioners for Coupled Magma/Mantle Dynamics	
15:00 - 15:30	Coffee Break (FSC Atrium)	
15:30 - 17:30	Parallel Sessions: (See page 3)	

15:30 - 17:30 Parallel Sessions:

	Mini 1: Block Preconditioning, Part II Room: FSC 1005	HPC Room: FSC 1001	Applications Room: FSC 1613
	Chair: Michael Wathen	Chair: Serge Petiton	Chair: Chao Yang
15:30-16:00	Jennifer Pestana	Serge Petiton	Chao Yang
	Efficient Block Preconditioning for a C1	A Distributed and Parallel Asynchronous	Preconditioners for Electronic Structure
	Finite Element Discretisation of the Dirichlet	Unite and Conquer Method to Solve Large	Calculation
	Biharmonic Problem	Scale Non-Hermitian Linear Systems	
16:00-16:30	Niall Bootland	Nahid Emad	Gabriela Diaz
	Preconditioners for Two-Phase Incompress-	Spectral Graph Analysis with Unite and	POD-based Deflation Methods for Two-
	ible Navier-Stokes Flow	Conquer Approach	Phase Reservoir Simulation
16:30-17:00	Jessica Bosch	Cédric Chevalier	Artur Safin
	Preconditioning for Two-Phase Flows	Algorithms for Multi-Criteria Mesh	A Finite Element Solution of the Thermo-
		Partitioning	acoustic Equations for Modeling of Trace
			Gas Sensors
17:00-17:30	Walter Zulehner	Tulin Kaman	Niccolò Dal Santo
	Robust Preconditioners for Optimality	Strategies for the Development of Efficient,	Multi Space Reduced Basis Preconditioners
	Systems - an Infinite-Dimensional	High-Order Accurate Residual Distribution	for Large-Scale Parametrized PDEs with
	Perspective	Schemes for the Solution of Compressible	Applications to Blood Flow Simulations
		Flow Problems	

17:30 - 19:30 Reception & Poster Event (CS Atrium)

- CPR-like Preconditioners for Large-Scale Linear Systems in Reservoir Simulations on GPU (Bo Yang)
- Boundary Layer Preconditioners for a Finite-Element Method (Thai Anh Nhan)
- Robust and Fast BiCG Method using SIMD-Accelerated DD Arithmetic (Hidehiko Hasegawa)
- ALIEN: Homogeneous Access to Linear Algebra Libraries (Cédric Chevalier)
- Preconditioned Newton-Krylov Methods for Model Predictive Control (Andrew Knyazev)
- Preconditioning for Diffuse Interface Tumor Growth Models (Jessica Bosch)
- Preconditioning the Elastic Wave Equation in 2D and 3D based on Inexact MSSS Matrix Computations (Manuel Baumann & Yue Qiu)
- Preconditioning in Reservoir Simulation (Thomas Roy)
- Distributed-Memory Hierarchical Interpolative Factorization (Yingzhou Li)

Tuesday August 1, 2017

08:30 - 09:15 Plenary: Alison Ramage (PHRM 1101, Chair: James Nagy)

A Multilevel Preconditioner for Data Assimilation with 4D-Var

09:15 - 09:45 Coffee Break (PHRM Atrium)

09:45 - 11:45 Parallel Sessions:

	Mini 3: Preconditioning Methods in Large-Scale III-Posed Inverse Problems, Part I Room: PHRM 1101 Chair: Lars Ruthotto	Mini 4: Innovative Structured Preconditioners, Part I Room: PHRM 1201 Chair: Jianlin Xia	Krylov Subspace Methods Room: PHRM 3208 Chair: Roland Herzog
09:45-10:15	James Nagy Robust Regression for Mixed Poisson—Gaussian Model	Laurent Demanet 3D Helmholtz: What is the Right Algorithm?	Roland Herzog Preconditioned GMRES Revisited
10:15-10:45	Eran Treister A Hybrid Domain Decomposition and Shifted Laplacian Multigrid Preconditioner for the Elastic Helmholtz Equation	Eric Michielssen Butterfly-based Fast Direct Solvers for Highly Oscillatory Problems	Arielle Grim-McNally Recycling Preconditioners and Subspaces for Sequences of Linear Systems
10:45-11:15	Andreas Mang Preconditioners for the Reduced Space Hessian in Hyperbolic Optimal Control Problems	Yingzhou Li Oscillatory Integral Operators and Interpolative Butterfly Factorization	Manuel Baumann An Efficient Two-Level Preconditioner for Multi-Frequency Wave Propagation Problems
11:15-11:45	Wenke Wilhelms Mimetic Multiscale Preconditioners for Electromagnetic Simulations	Chao Chen A Distributed-Memory Hierarchical Solver for Sparse Matrices	Andrew Knyazev Preconditioned Spectral Clustering of Signed Graphs

11:45 - 13:30 Lunch Break & Group Photo

13:30 - 14:15 Plenary: Jed Brown (FSC 1005, Chair: Yousef Saad)

Practical and Efficient Time Integration and Kronecker Product Solvers

14:15 - 15:00 Plenary: Jie Chen (FSC 1005, Chair: Yousef Saad)

Fixed-Domain Asymptotics of Covariance Matrices and Preconditioning

15:00 - 15:30 Coffee Break (FSC Atrium)

15:30 - 17:30 Parallel Sessions: (See page 5)

15:30 - 17:30 Parallel Sessions:

	Mini 3: Preconditioning Methods in Large-Scale III-Posed Inverse Problems,	Mini 4: Innovative Structured Precondi- tioners, Part II	Block-Structured Systems
	Part II Room: FSC 1005	Room: FSC 1001	Room: FSC 1613 Chair: Tyrone Rees
	Chair: James Nagy	Chair: Eric Darve	Chail. Tyrone Kees
15:30-16:00	Ana Maria Soane	Panayot Vassilevski	Tyrone Rees
	Multigrid Preconditioners for the Newton-	Preconditioning Matrices by Diagonal Com-	Null-Space Preconditioners for Saddle Point
	Krylov Method in the Optimal Control of the	pensation with Rank One Matrices	Systems
	Stationary Navier-Stokes Equations		
16:00-16:30	Lars Ruthotto	Pieter Ghysels	Massimiliano Ferronato
	A Stabilized Multigrid Solver for Hyperelastic	A Robust and Parallel Approximate Factori-	A Class of Block Preconditioners for Multi-
	Image Registration	zation Preconditioner using Hierarchical	Physics Coupled Problems
		Matrices and Randomized Sampling	
16:30-17:00	Scott MacLachlan	Qiang Ye	Aurelio Oliveira
	Multigrid Methods for Regularized Problems	Preconditioning for Accurate Solutions of	Switching Preconditioners in a Hybrid Ap-
		Linear Systems and Eigenvalue Problems	proach for Linear Systems arising from
			Interior Point Methods
17:00-17:30	Yue Qiu	Jianlin Xia	
	Low-Rank Methods for Computations of	Effective and Robust Preconditioners for	
	Posterior Covariance Matrices in Bayesian	SPD Matrices via Structured Incomplete	
	Inverse Problems	Factorization	

18:30 - 20:30 Conference Dinner (*University Golf Club*)

5185 University Blvd, Vancouver, BC V6T 1X5

Wednesday August 2, 2017

08:30 - 09:15 Plenary: Nicole Spillane (FSC 1005, Chair: Daniel Szyld)

Adaptive Multipreconditioning for Domain Decomposition

09:15 - 09:45 Coffee Break (FSC Atrium)

09:45 - 11:45 Parallel Sessions:

	Mini 5: Preconditioning in the Context of Radial Basis Functions, Part I Room: FSC 1005 Chair: Alison Ramage	Mini 6: Application Driven Preconditioning and Accelerating Methods **Room: FSC 1001 **Chair: Hengbin An	Multigrid Methods Room: FSC 1613 Chair: Raymond Tuminaro
09:45-10:15	Rio Yokota A Hybrid FMM-H ² -Matrix for Preconditioning Radial Basis Functions	Hengbin An Anderson Acceleration and Application to Neutron Transport Equation	Raymond Tuminaro Algebraic Multigrid Solvers for Thin- Domain Problems: Application to Ice Sheet Modeling
10:15-10:45	Jens Markus Melenk Thin-Plate Spline Interpolation: Convergence Analysis and H-Matrix Solution Techniques	Tao Cui Parallel Preconditioning Techniques for Electromagnetic Problems	Yunhui He Local Fourier Analysis of Block-Structured Multigrid Relaxation Schemes for the Stokes Equations
10:45-11:15	Jie Chen A Novel Class of Covariance Functions and Linear-Cost Matrix Computations	Hui Liu Scalable Multi-stage Preconditioners for Numerical Simulations of Multi-Phase Flow in Porous Media	Daniel Osei-Kuffuor Multigrid Reduction for Coupled Linear Systems with Applications to Multiphase Flow
11:15-11:45	Sabine Le Borne Comparison of Analytically and Algebraically Constructed Low Rank Approximations in Kernel-based Scattered Data Interpolation	Xiaowen Xu An Adaptive Preconditioning Strategy for Large-Scale Multi-Physics Simulations	

11:45 - 13:30 Lunch Break

13:30 - 14:15 Plenary: Eric Darve (FSC 1005, Chair: Esmond Ng)

Low-Rank Factorization Algorithms for Kernel Matrices

14:15 - 14:30 Coffee Break (FSC Atrium)

14:30 - 16:30 Parallel Sessions (See page 7)

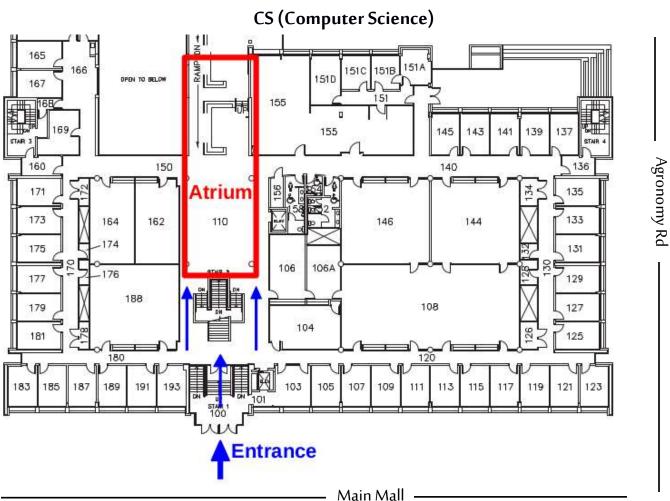
14:30 - 16:30 Parallel Sessions:

	Mini 5: Preconditioning in the Context of Radial Basis Functions, Part II Room: FSC 1005 Chair: Sabine Le Borne	Domain Decomposition Methods <i>Room: FSC 1001 Chair: Edmond Chow</i>
14:30-15:00	Patricio Farrell How to Make Multilevel RBF Collocation More Efficient	Edmond Chow Asynchronous Iterative Solvers and Preconditioners
15:00-15:30	Benedikt Diederichs New Estimates for Condition Numbers of Radial Basis Function Interpolation Matrices	Carlos Echeverria Serur Convergence of the Multiplicative Schwarz Method for Convection-Diffusion Problems Discretized on a Shishkin Mesh
15:30-16:00	Elisabeth Larsson Preconditioning for Radial Basis Function Partition of Unity Methods	Victorita Dolean Nonlinear Preconditioning: How to use a Nonlinear Schwarz Method to Precondition Newton's method
16:00-16:30	Erin Claire Carson Preconditioned GMRES-based Iterative Refinement for the Solution of Sparse III-Conditioned Linear Systems	

Notes:

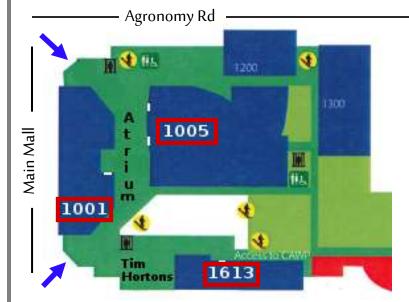
Campus Map & Room Guide: Computer Science/ Forestry/ Pharmacy





8





Agronomy Rd

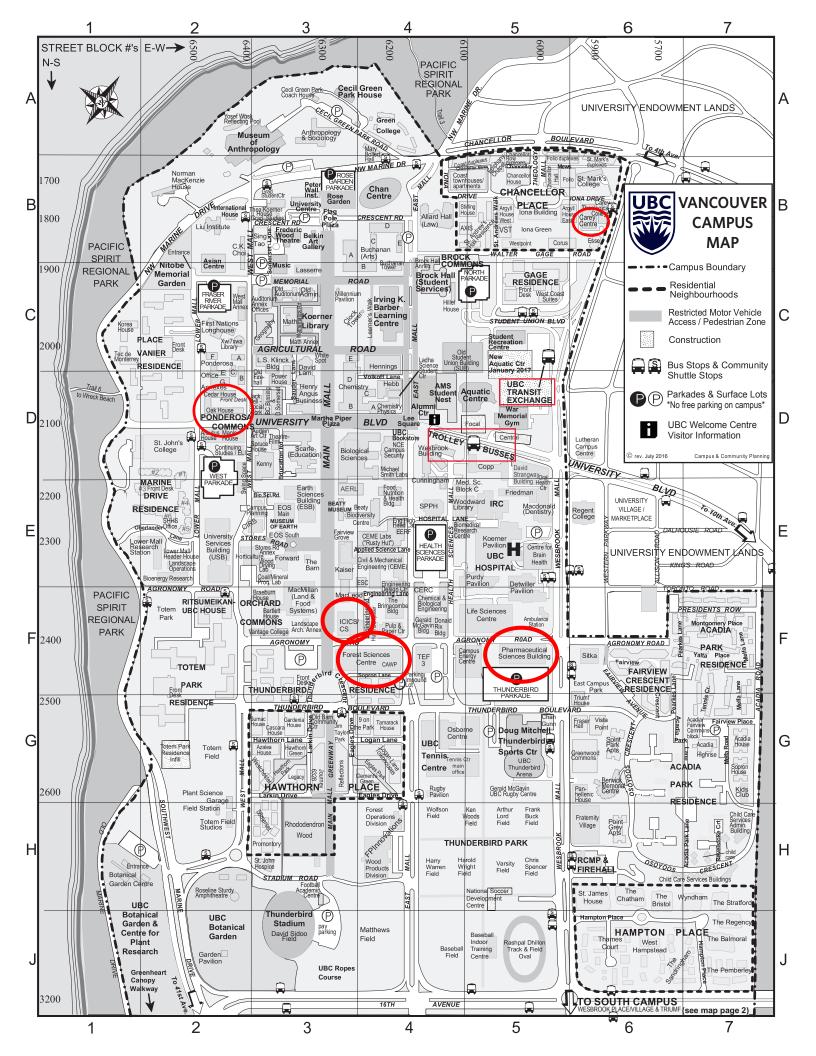
PHRM (Pharmacy), floor 1



PHRM (Pharmacy), floor 3



_ Wesbrook Mall



Map Directory

Abdul Ladha Science Student Ctr, 2055 East Mall	
Acadia/Fairview Commonsblock & Front Desk, 2707 Tennis Cres	
Acadia House, 2700-2720 Acadia Rd	
Acadia Park Residence (Student Parmiy Housing)	
Allard Hall [Faculty of Law], 1822 East Mall	B4
Alumni Centre (Robert H. Lee), 6163 University Blvd	
AMS Student Nest (new student union building), 6133 University Blvd Anthropology & Sociology (ANSOC) Bldg, 6303 NW Marine Dr	
Aquatic Centre (New - opening Jan. 2017), 6080 Student Union Blvd	
Aquatic Centre (Old), 6121 University Blvd	D5
Aquatic Ecosystems Research Lab (AERL), 2202 Main Mall	
Asian Centre, 1871 West Mall	
Auditorium Annex Offices A & B, 1924 West Mall	
Barn ("Owl" child care), 2323 Main Mall	E3
Baseball Indoor Training Centre, 3085 West Mall	
B.C. Binning Studios, 6373 University BlvdBeaty Biodiversity Centre & Museum, 2212 Main Mall	
Belkin (Morris & Helen) Art Gallery, 1825 Main Mall	
Berwick Memorial Centre, 2765 Osoyoos Cres	G6
Bioenergy Research & Demonstration Facility (BRDF), 2337 Lower Mall	E2
Biological Sciences Bldg, 6270 University Blvd	
Bollert (Mary) Hall, 6253 NW Marine Dr	
Bookstore, 6200 University Blvd	D4
Botanical Garden Centre/Gatehouse, 6804 SW Marine Dr	
Botanical Garden Pavilion (enter at Gatehouse, 6804 SW Marine Dr) Botan. Gard. Greenhses/ Workshops, 3929 Wesbrook MallSouth Ca	
Brimacombe Building, 2355 East Mall	
Brock Commons - Tallwood House (construction), 6088 Walter Gage Rd.	B4
BROCK HALL: Student Services & Welcome Centre, 1874 East Mall	
Brock Hall Annex, 1874 East Mall Buchanan Building (Blocks A, B, C, D, & E) [Arts], 1866 Main Mall	
Buchanan Tower, 1873 East Mall	
Building Ops Nursery/Greenhouses, 6029 Nurseries RdSouth Ca	mpus
C.K. Choi Building for the Institute of Asian Research, 1855 West Mall	
Campus & Community Planning, 2210 West Mall	
Campus Security, 2133 East Mall	D4
Carey Centre / Theological College, 5920 Iona Drive/1815 Wesbrook Ma	II B6
Cecil Green Park Coach House, 6323 Cecil Green Park Rd	
Cecil Green Park House, 6251 Cecil Green Park Rd Centre for Brain Health (Djavad Mowafaghian), 2215 Wesbrook Mall	
Centre for Comparative Medicine (CCM), 4145 Wesbrook MallSouth Ca	
Chan Centre for the Performing Arts, 6265 Crescent RdRd	B4
Chan Gunn Pavilion (new sports med. construction), 2553 Wesbrook Mal	
Chemical & Biological Engineering Bldg, 2360 East Mall Chemistry A Block - Chemistry Physics Building, 6221 University Blvd	
Chemistry B.C,D & E Blocks, 2036 Main Mall	
Child Care Services Administration Bldg, 2881 Acadia Rd	
Child Care Services Bldgs, Osoyoos Crescent and Revelstoke Crt	
CIRS (Centre for Interactive Research on Sustainability), 2260 West Mall Civil & Mechanical Engineering Bldg (CEME), 6250 Applied Science Land	
Civil & Mechanical Eng. Labs ("Rusty Hut"), 2275 East Mall	E4
Coal & Mineral Processing Lab, 2332 West Mall	E3
Continuing Studies Bldg [English Language Institute], 2121 West Mall Copp (D.H.) Building, 2146 Health Sciences Mall	D2
Cunningham (George) Building, 2146 East Mall	
David Lam Learning Centre, 6326 Agricultural Rd	C3
David Lam Management Research Ctr, 2033 Main Mall	C3
David Strangway Building, 5950 University Blvd	
Donald Rix Building, 2389 Health Sciences Mall Doug Mitchell Thunderbird Sports Centre, 6066 Thunderbird Blvd	
Dorothy Somerset Studios, 6361 University Blvd	
Earth Sciences Building (ESB), 2207 Main Mall	E3
Earth & Ocean Sciences (EOS) - Main and South, 6339 Stores Rd	
Earthquake Engineering Research Facility (EERF), 2235 East Mall Engineering High Head Room Lab, 2225 East Mall	
Engineering Student Centre, 2335 Engineering Road	E4
English Language Institute (E.L.I.) — see Continuing Studies Building	
Environmental Services Facility, 6025 Nurseries RdSouth Ca Fairview Crescent Residence, 2600-2804 Fairview Cres	mpus
Fairview Crescent Residence, 2600-2804 Fairview Cres	
First Nations Longhouse, 1985 West Mall	C2
Flag Pole Plaza (Main Mall & Crescent Rd)	B3
Food, Nutrition and Health Bldg, 2205 East Mall	
Forest Sciences Centre [Faculty of Forestry], 2424 Main Mall Forward (Frank) Building, 6350 Stores Rd	
FPInnovations, 2601 & 2665 East Mall	H4
Fraser Hall, 2550 Wesbrook Mall	G6
Fraternity Village, 2880 Wesbrook Mall	
Frederic Wood Theatre, 6354 Crescent Rd Friedman Bldg, 2177 Wesbrook Mall	
Gage (Walter H.) Residence, 5959 Student Union Blvd	
Geography Building, 1984 West Mall	C3
Gerald McGavin Building, 2386 East Mall	F4
	G5
Gerald McGavin UBC Rugby Centre, 2765 Wesbrook Mall	Δ/
Gerald McGavin UBC Rugby Centre, 2765 Wesbrook Mall	
Gerald McGavin UBC Rugby Centre, 2765 Wesbrook Mall Graduate Student Centre — see Thea Koerner House Green College, 6201 Cecil Green Park Rd	D4
Gerald McGavin UBC Rugby Centre, 2765 Wesbrook Mall	D4
Gerald McGavin UBC Rugby Centre, 2765 Wesbrook Mall	D4 C4 D3

Site or Building Name & Address G	rid
Hugh Dempster Pavilion, 6245 Agronomy Rd	F4
ICICS/CS (Institute for Computing, Information & Cognitive Systems/Computer Science), 2366 Main Mall	Εı
Instructional Resources Centre (IRC), 2194 Health Sciences Mall	F5
International House, 1783 West Mall	
In-Vessel Composting Facility, 6035 Nurseries RoadSou	
Irving K. Barber Learning Centre, 1961 East Mall	
Jack Bell Building for the School of Social Work, 2080 West Mall	
Kaiser (Fred) Building [Faculty of Applied Science], 2332 Main Mall	
Kenny (Douglas T) Building, [Psychology] 2136 West Mall	
Kids Club, 2855 Acadia Rd	
Klinck (Leonard S.) Bldg, 6356 Agricultural Rd	
Koerner (Walter C.) Library, 1958 Main Mall	
Lasserre (Frederic) Building, 6333 Memorial Rd	
Library Preservation Archives (PARC), 6049 Nurseries RdSou	
Life Sciences Centre, 2350 Health Sciences Mall	
Liu Institute for Global Issues, 6476 NW Marine Dr	
Lower Mall Research Station, 2259 Lower Mall	
Macdonald (J.B.) Building [Dentistry], 2199 Wesbrook Mall	
MacLeod (Hector) Building, 2356 Main Mall	
MacMillan (H.R.) Bldg [Faculty of Land & Food Systems], 2357 Mair	
Marine Drive Residence (Front Desk in Bldg #3), 2205 Lower Mall	
Material Recovery Facility, 6055 Nurseries RdSour	
Mathematics Annex, 1986 Mathematics Rd	
Mathematics Building, 1984 Mathematics Rd	
Medical Sciences Block C, 2176 Health Sc. Mall	
Michael Smith Laboratories, 2185 East Mall	
Music Building, 6361 Memorial Rd	
National Soccer Development Centre, 3065 Wesbrook Mall	
Networks of Ctrs of Excellence (NCE), 2125 East Mall	
Nitobe Memorial Garden, 1895 Lower Mall	
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall	B/C2
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6565 NW Marine Dr	B/C2 E5 B2
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6565 NW Marine Dr NRC Institute for Fuel Cell Innovation, 4250 Wesbrook MallSou	B/C2 E5 B2 th Campus
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6555 NW Marine Dr NRC Institute for Fuel Cell Innovation, 4250 Wesbrook Mall Old Administration Building, 6328 Memorial Rd	B/C2 E5 B2 th Campus C3
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall	B/C2 E5 B2 th Campus C3
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall	B/C2 E5 B2 th Campus C3 C3
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6565 NW Marine Dr NRC Institute for Fuel Cell Innovation, 4250 Wesbrook Mall Sou Old Addininistration Building, 6328 Memorial Rd. Old Auditorium, 6344 Memorial Rd. Old Barn Community Centre, 6308 Thunderbird Blvd Old Firehall, 2038 West Mall	B/C2 E5 B2 th Campus C3 C3
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6565 NW Marine Dr. NRC Institute for Fuel Cell Innovation, 4250 Wesbrook Mall Sou Old Administration Building, 6328 Memorial Rd Old Auditorium, 6344 Memorial Rd. Old Barn Community Centre, 6308 Thunderbird Blvd Old Firehall, 2038 West Mall Orchard Commons, 6363 Agronomy Rd	B/C2B/C2B/C2B2 ch CampusC3C3
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6565 NW Marine Dr. NRC Institute for Fuel Cell Innovation, 4250 Wesbrook Mall Old Administration Building, 6328 Memorial Rd. Old Auditorium, 6344 Memorial Rd. Old Barn Community Centre, 6308 Thunderbird Blvd. Old Firehall, 2038 West Mall Orchard Commons, 6363 Agronomy Rd. Osborne (Robert F.) Centre/Gym, 6108 Thunderbird Blvd.	B/C2 E5 B2 C3 C3 C3 C3 C3 C3 C4 C5 C5 C6 C7
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6565 NW Marine Dr NRC Institute for Fuel Cell Innovation, 4250 Wesbrook Mall Nord Administration Building, 6328 Memorial Rd Old Auditorium, 6344 Memorial Rd Old Barn Community Centre, 6308 Thunderbird Blvd Old Firehall, 2038 West Mall Orchard Commons, 6363 Agronomy Rd Osborne (Robert F.) Centre/Gym, 6108 Thunderbird Blvd Pacific Museum of Earth (In EOS-Main), 6339 Stores Rd	B/C2 E5 B2 th Campus C3 G3 D3 F3 G4
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6565 NW Marine Dr NRC Institute for Fuel Cell Innovation, 4250 Wesbrook Mall Sou Old Administration Building, 6328 Memorial Rd. Old Auditorium, 6344 Memorial Rd. Old Barn Community Centre, 6308 Thunderbird Blvd Old Firehall, 2038 West Mall Orchard Commons, 6363 Agronomy Rd. Osborne (Robert F), Centre(Gym, 6108 Thunderbird Blvd Pacific Museum of Earth (in EOS-Main), 6339 Stores Rd Panhellenic House, 2770 Wesbrook Mall	B/C2B/C2B2 th CampusC3G3G3G3G4G4
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6555 NW Marine Dr. NRC Institute for Fuel Cell Innovation, 4250 Wesbrook MallSou Old Administration Building, 6328 Memorial Rd. Old Barn Community Centre, 6308 Thunderbird Blvd Old Firehall, 2038 West Mall Orchard Commons, 6363 Agronomy Rd. Osborne (Robert F.) Centre(Gym, 6108 Thunderbird Blvd Pacific Museum of Earth (In EOS-Main), 6339 Stores Rd Panhellenic House, 2770 Wesbrook Mall. Peter Wall Institute for Advanced Studies (PWIAS), 6331 Crescent F.	B/C2
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6565 NW Marine Dr NRC Institute for Fuel Cell Innovation, 4250 Wesbrook Mall Sou Old Administration Building, 6328 Memorial Rd Old Auditorium, 6344 Memorial Rd Old Barn Community Centre, 6308 Thunderbird Blvd Old Firehall, 2038 West Mall Orchard Commons, 6363 Agronomy Rd. Osborne (Robert F), Centrei(Syn, 6108 Thunderbird Blvd Pacific Museum of Earth (In EOS-Maln), 6339 Stores Rd Panhellenic House, 2770 Wesbrook Mall Peter Wall Institute for Advanced Studies (PWIAS), 6331 Crescent F Pharmaceutical Sciences Building, 2405 Wesbrook Mall Place Vanier Residence, 1935 Lower Mall	B/C2
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6565 NW Marine Dr. NRC Institute for Fuel Cell Innovation, 4250 Wesbrook Mall Sou Old Administration Building, 6328 Memorial Rd Old Auditorium, 6344 Memorial Rd. Old Barn Community Centre, 6308 Thunderbird Blvd Old Firehall, 2038 West Mall Orchard Commons, 6363 Agronomy Rd Osborne (Robert F) Centre(Gym, 6108 Thunderbird Blvd Pacific Museum of Earth (in EOS-Main), 6339 Stores Rd Panhellenic House, 2770 Wesbrook Mall Peter Wall Institute for Advanced Studies (PWIAS), 6331 Crescent F Pharmaceutical Sciences Building, 2405 Wesbrook Mall Place Vanier Residence, 1935 Lower Mall Plant Science Field Station & Garage, 2613 West Mall	B/C2 E5 B2 B2 B3 C3 C3 G3 G3 G3 G4 E3 E3 C6 C6 C7
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6565 NW Marine Dr NRC Institute for Fuel Cell Innovation, 4250 Wesbrook Mall Sou Old Administration Building, 6328 Memorial Rd Old Auditorium, 6344 Memorial Rd Old Barn Community Centre, 6308 Thunderbird Blvd Old Firehall, 2038 West Mall Orchard Commons, 6363 Agronomy Rd. Osborne (Robert F) Centre/Gym, 6108 Thunderbird Blvd Pacific Museum of Earth (In EOS-Main), 6339 Stores Rd Pacetre Wall Institute for Advanced Studies (PWIAS), 6331 Crescent F Pharmaceutical Sciences Building, 2405 Wesbrook Mall. Place Vanier Residence, 1935 Lower Mall Plant Science Field Station & Garage, 2613 West Mall Point Grey Apartments, 2875 Osoyoos Cresc	B/C2 E5 B2 B2 C3 G3 G3 D3 F3 G4 E3 G4 E3 G4 H2 H6 H6
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6565 NW Marine Dr NRC Institute for Fuel Cell Innovation, 4250 Wesbrook Mall Sou Old Administration Building, 6328 Memorial Rd Old Auditorium, 6344 Memorial Rd Old Barn Community Centre, 6308 Thunderbird Blvd Old Firehall, 2038 West Mall Orchard Commons, 6363 Agronomy Rd. Osborne (Robert F.) Centre/Gym, 6108 Thunderbird Blvd Pacific Museum of Earth (In EOS-Maln), 6339 Stores Rd Panhellenic House, 2770 Wesbrook Mall. Peter Wall Institute for Advanced Studies (PWIAS), 6331 Crescent F Pharmaceutical Sciences Building, 2405 Wesbrook Mall. Place Vanier Residence, 1935 Lower Mall. Plant Science Field Station & Garage, 2613 West Mall Ploint Grey Apartments, 2875 Osoyoos Cresc. Police (RCMP) & Fire Department, 2990/2992 Wesbrook Mall	B/C2 E5 B2 B2 B1 B2 B1 B2 B3
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6565 NW Marine Dr NRC Institute for Fuel Cell Innovation, 4250 Wesbrook Mall Sou Old Administration Building, 6328 Memorial Rd Old Auditorium, 6344 Memorial Rd Old Barn Community Centre, 6308 Thunderbird Blvd Old Firehall, 2038 West Mall Orchard Commons, 6363 Agronomy Rd Osborne (Robert F.) Centre(Gym, 6108 Thunderbird Blvd Pacific Museum of Earth (in EOS-Maln), 6339 Stores Rd Panhellenic House, 2770 Wesbrook Mall Peter Wall Institute for Advanced Studies (PWIAS), 6331 Crescent F. Pharmaceutical Sciences Building, 2405 Wesbrook Mall Place Vanier Residence, 1935 Lower Mall Plant Science Field Station & Garage, 2613 West Mall Point Grey Apartments, 2875 Osoyoos Cresc Police (RCMP) & Fire Department, 2990/2992 Wesbrook Mall POINDEROSA COMMONS, University Blvd & West Mall	B/C2 E5 B2 B2 B3 C3 C3 C3 G3 G3 F3 F3 G4 E3 C4 B1 B2 C7 B2 B2 B3
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6565 NW Marine Dr. NRC Institute for Fuel Cell Innovation, 4250 Wesbrook Mall Sou Old Administration Building, 6328 Memorial Rd. Old Auditorium, 6344 Memorial Rd. Old Ban Community Centre, 6308 Thunderbird Blvd. Old Firehall, 2038 West Mall Orchard Commons, 6363 Agronomy Rd. Osborne (Robert F) Centre/Gym, 6108 Thunderbird Blvd. Pacific Museum of Earth (in EOS-Main), 6339 Stores Rd. Panhellenic House, 2770 Wesbrook Mall. Peter Wall Institute for Advanced Studies (PWIAS), 6331 Crescent F Pharmaceutical Sciences Building, 2405 Wesbrook Mall. Place Vanier Residence, 1935 Lower Mall. Plant Science Field Station & Garage, 2613 West Mall Point Grey Apartments, 2875 Osoyoos Cresc. Police (RCMP) & Fire Department, 2990/2992 Wesbrook Mall. PONDEROSA COMMONS, University Blvd & West Mall. Arbutus & Maple Houses, 6488 University Blvd.	B/C2 E5 B2 B2 B3 C3 C3 G3 G3 G3 G4 E3 G6 C4 B3 C7
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6565 NW Marine Dr NRC Institute for Fuel Cell Innovation, 4250 Wesbrook Mall Sou Old Administration Building, 6328 Memorial Rd Old Auditorium, 6344 Memorial Rd Old Barn Community Centre, 6308 Thunderbird Blvd Old Firehall, 2038 West Mall Orchard Commons, 6363 Agronomy Rd. Osborne (Robert F) Centre/Gym, 6108 Thunderbird Blvd Pacific Museum of Earth (In EOS-Main), 6339 Stores Rd Panhellenic House, 2770 Wesbrook Mall. Peter Wall Institute for Advanced Studies (PWIAS), 6331 Crescent F Pharmaceutical Sciences Building, 2405 Wesbrook Mall Place Vanier Residence, 1935 Lower Mall Plant Science Field Station & Garage, 2613 West Mall Point Grey Apartments, 2875 Osoyoos Cresc. Police (RCMP) & Fire Department, 2990/2992 Wesbrook Mall. PONDEROSA COMMONS, University Blvd & West Mall. Arbutus & Maple Houses, 6488 University Blvd. Cedar House (Ponderosa Commons Front Desk), 2075 West Mal	B/C2 E5 B2 B1 C3 C3 C3 C3 C3 B3 B3 F3 G4 B3 F5 C/D2 H2 H6 H6 D2/3 D2/3
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6565 NW Marine Dr NRC Institute for Fuel Cell Innovation, 4250 Wesbrook Mall Sou Old Administration Building, 6328 Memorial Rd Old Auditorium, 6344 Memorial Rd Old Barn Community Centre, 6308 Thunderbird Blvd Old Firehall, 2038 West Mall Orchard Commons, 6363 Agronomy Rd. Osborne (Robert F) Centre/Gym, 6108 Thunderbird Blvd Pacific Museum of Earth (In EOS-Main), 6339 Stores Rd Panhellenic House, 2770 Wesbrook Mall. Peter Wall Institute for Advanced Studies (PWIAS), 6331 Crescent F Pharmaceutical Sciences Building, 2405 Wesbrook Mall Place Vanier Residence, 1935 Lower Mall Plant Science Field Station & Garage, 2613 West Mall Point Grey Apartments, 2875 Osoyoos Cresc. Police (RCMP) & Fire Department, 2990/2992 Wesbrook Mall. PONDEROSA COMMONS, University Blvd & West Mall. Arbutus & Maple Houses, 6488 University Blvd. Cedar House (Ponderosa Commons Front Desk), 2075 West Mal	B/C2 E5 B2 B1 C3 C3 C3 C3 C3 B3 B3 F3 G4 B3 F5 C/D2 H2 H6 H6 D2/3 D2/3
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6565 NW Marine Dr NRC Institute for Fuel Cell Innovation, 4250 Wesbrook Mall Sou Old Administration Building, 6328 Memorial Rd Old Auditorium, 6344 Memorial Rd Old Barn Community Centre, 6308 Thunderbird Blvd Old Firehall, 2038 West Mall Orchard Commons, 6363 Agronomy Rd. Osborne (Robert F) Centre/Gym, 6108 Thunderbird Blvd Pacific Museum of Earth (In EOS-Main), 6339 Stores Rd Panhellenic House, 2770 Wesbrook Mall. Peter Wall Institute for Advanced Studies (PWIAS), 6331 Crescent F Pharmaceutical Sciences Building, 2405 Wesbrook Mall Place Vanier Residence, 1935 Lower Mall Plant Science Field Station & Garage, 2613 West Mall Point Grey Apartments, 2875 Osoyoos Cresc. Police (RCMP) & Fire Department, 2990/2992 Wesbrook Mall. PONDEROSA COMMONS, University Blvd & West Mall. Arbutus & Maple Houses, 6488 University Blvd. Cedar House (Ponderosa Commons Front Desk), 2075 West Mal	B/C2 E5 B2 B1 C3 C3 C3 C3 C3 B3 B3 F3 G4 B3 F5 C/D2 H2 H6 H6 D2/3 D2/3
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6565 NW Marine Dr NRC Institute for Fuel Cell Innovation, 4250 Wesbrook Mall Sou Old Administration Building, 6328 Memorial Rd Old Auditorium, 6344 Memorial Rd Old Barn Community Centre, 6308 Thunderbird Blvd Old Firehall, 2038 West Mall Orchard Commons, 6363 Agronomy Rd. Osborne (Robert F) Centre/Gym, 6108 Thunderbird Blvd Pacific Museum of Earth (In EOS-Main), 6339 Stores Rd Panhellenic House, 2770 Wesbrook Mall. Peter Wall Institute for Advanced Studies (PWIAS), 6331 Crescent F Pharmaceutical Sciences Building, 2405 Wesbrook Mall Place Vanier Residence, 1935 Lower Mall Plant Science Field Station & Garage, 2613 West Mall Point Grey Apartments, 2875 Osoyoos Cresc. Police (RCMP) & Fire Department, 2990/2992 Wesbrook Mall. PONDEROSA COMMONS, University Blvd & West Mall. Arbutus & Maple Houses, 6488 University Blvd. Cedar House (Ponderosa Commons Front Desk), 2075 West Mal	B/C2 E5 B2 B1 C3 C3 C3 C3 C3 B3 B3 F3 G4 B3 F5 C/D2 H2 H6 H6 D2/3 D2/3
Nobel Biocare Oral Heath Centre, 2151 Wesbrook Mall Norman MacKenzie House, 6565 NW Marine Dr NRC Institute for Fuel Cell Innovation, 4250 Wesbrook Mall Sou Old Administration Building, 6328 Memorial Rd Old Auditorium, 6344 Memorial Rd Old Barn Community Centre, 6308 Thunderbird Blvd Old Firehall, 2038 West Mall Orchard Commons, 6363 Agronomy Rd. Osborne (Robert F), Centrei(Sym, 6108 Thunderbird Blvd Pacific Museum of Earth (In EOS-Maln), 6339 Stores Rd Panhellenic House, 2770 Wesbrook Mall Peter Wall Institute for Advanced Studies (PWIAS), 6331 Crescent F Pharmaceutical Sciences Building, 2405 Wesbrook Mall Plant Science Field Station & Garage, 2613 West Mall Point Grey Apartments, 2875 Osoyoos Cresc. Police (RCMP) & Fire Department, 2990/2992 Wesbrook Mall PONDEROSA COMMONS, University Blvd & West Mall Arbutus & Maple Houses, 6488 University Blvd. Cedar House (Ponderosa Commons Front Desk), 2075 West Mal Oak House, 6445 University Blvd	B/C2 E5 B2 B1 C3 C3 C3 C3 C3 B3 B3 F3 G4 B3 F5 C/D2 H2 H6 H6 D2/3 D2/3

Site or Building Name & Address	Grid
Ponderosa Office Annexes: A, B, & C, 2011-2029 West Mall	
Ponderosa Office Annexes: E, F & G, 2008-2044 Lower Mall	
Power House, 2040 West Mall	D3
Pulp and Paper Centre, 2385 East Mall	F4
Ritsumeikan-UBC House, 6460 Agronomy Rd	
Rose Garden	
Rugby Pavilion, 2584 East Mall	
Scarfe (Neville) Building [Education], 2125 Main Mall	
School of Population & Public Health (SPPH), 2206 East Mall	
SERC (Staging Environmental Research Ctr), 6045 Nurseries R	
Sing Tao Building, 6388 Crescent Rd	
Sopron House, 2730 Acadia Rd	
South Campus Warehouse, 6116 Nurseries Rd	
Spirit Park Apartments, 2705-2725 Osoyoos Cresc	
St. Andrew's Hall/Residence, 6040 Iona Dr	
St. John Hospice, 6389 Stadium Road	
St. John's College, 2111 Lower Mall	
St. Mark's College, 5935 Iona Dr.	
Stores Road Annex, 6368 Stores RdStudent Family Housing (Acadia Park Residence)	
Student Recreation Centre, 6000 Student Union Blvd	
Student Union Bldg (old) (Old SUB), 6138 Student Union Blvd	
TEF3 (Technology Enterprise Facility 3), 6190 Agronomy Rd	
Thea Koerner House [Faculty of Graduate Studies], 6371 Cresco	
Theatre-Film Production Bldg, 6358 University Blvd	
Thunderbird Residence, 6335 Thunderbird Cresc	
Thunderbird Arena (in Doug Mitchell Centre), 2555 Wesbrook M	
Thunderbird Stadium, 6288 Stadium Rd	
Totem Field Studios, 2613 West Mall	
Totem Park Residence, 2525 West Mall	
TRIUMF, 4004 Wesbrook Mall	
Triumf House (TRIUMF Visitors' Residence), 5835 Thunderbird E	
UBC Bookstore, 6200 University Blvd	D4
UBC Farm, 3461 Ross Drive	South Campus
UBC Football Academic Centre, 6298 Stadium Rd	
UBC Hospital, 2211 Wesbrook Mall	E5
UBC Parking Impound Lot, 2451 East Mall	
UBC Tennis Centre, 6160 Thunderbird Blvd	
University Centre (Leon & Thea Koerner), 6331 Crescent Rd	
University Services Building (USB), 2329 West Mall	
Vancouver School of Theology (VST), 6015 Walter Gage Rd	
Vantage College (in Orchard Commons, Fall 2016), 6363 Agrond	omy Rd F3
War Memorial Gymnasium, 6081 University Blvd	
Wayne & William White Engineering Design Ctr, 2345 East Mall.	
Wesbrook Bldg, 6174 University Blvd	
Wesbrook Community Centre, 5998 Berton Ave	
Westrook Village commercial centre	
West Mall Annex, 1933 West Mall	
Wood Drying Laboratory, 2324 West Mall	
Wood Drying Laboratory, 2324 West Mail	
Woodward Library, 2198 Health Sciences Mall	
Processive Library, 2 130 1 Idaiti Sciences Ivian	

