NSERC Subatomic GSC Site Visit to Victoria

8:30 Meet with Department Chair - Reading Room, Elliott 106
8:50 Move to Senate Chambers
9:00 NSERC speaks to us about policy etc. Whole group is invited plus GSC

10:00 - Coffee

10:15 - Intro (RKK) ← We are here.
10:30 - BaBar (JMR)
11:00 - ATLAS (ML/RKK)
11:30 - OPAL (RKK)
11:40 - Linear Collider (DK)
12:00 - Theory (MP)

12:25 – Start lunch

1:30 – Finish lunch

1:40 - Computing and MFA
HEPNET & HEPGRID
GRID Canada / MFA (RJS)
2:15 - Tour of MERCURY & Storage system -GRID Canada (RJS)
3:00 - Visit Detector Lab, TRIUMF lab, MUSE (DK/RKK/RJS)

3:45 - Coffee with Graduate Students (no faculty)

4:15 - Close out with Department Chair
4:30 - Depart for airport

6:15 - Flight to Vancouver

The Particle Physics Group at Victoria

- Particle Physics is a major focus of the department
- Research: OPAL, BaBar, ATLAS, Linear Collider
- Education
  - To provide access to top international research for graduate and undergraduate students
- Internationally recognized group
  - responsible for major components of international projects
  - the University of Victoria is a well known name in particle physics
  - diverse, talented, critical mass for large impact
    - 43 researchers (faculty, fellows, associates, students, technologists) from 9 countries
    - research activities include extensive period spent at world class laboratories abroad (CERN, Stanford) Excellent training for students

The Particle Physics Group at Victoria

- Faculty
  - experimentalists: Astbury, Karlen, Keeler, Kowalewski, Lefebvre, McPherson (IPP), Roney, Sobie (IPP)
  - Theorists: Picciotto, Pospelov
- Onsite TRIUMF staff
  - Birney, Charron, Dowling, Langstaff, Lenckowski
- Research associates
  - Agarwal, Banerjee, Bhuyan, Fincke, Kanaya, Poffenberger
- Graduate students
  - Bailey, Bayes, Bird, Bolokhov, Brown, Fortin, Hamano, Hughes, Ince, Jackson, Lambert, Michailopoulos, Nugent, Rosenbaum, Shaw, Teke, Vanderster (with EE), Yun
- Computer scientist
  - Bickle, Van Uytven
- Technologists
  - Holness
- Undergraduate
  - Klektau

The Particle Physics Faculty at Victoria

- **D. Karlen (2002) PhD Stanford 88**
  - Pearce Chair of Physics
  - Chair NSERC Subatomic Physics Chair (2003)
- **R. Keeler (83) PhD UBC 81**
  - Director of IPP (Institute of Particle Physics)
  - Chair NSERC Subatomic Physics GSC (2000-2001)
- **R. Kowalewski (97) PhD Cornell 88**
  - B physics, particle lifetimes, reconstruction software (OPAL, BaBar, ATLAS)
  - Convenor of BaBar Exclusive Semileptonic Working Group
  - Member BaBar Publications Board (2003-)
- **M. Lefebvre (91) PhD Cambridge 89**
  - Electroweak physics, Calorimetry (UA2, RD3, ATLAS)
  - Founded ATLAS Canada, ATLAS Advisory Board (1998-99)
  - ATLAS Publications Committee (2002-)
- **R. McPherson (97) PhD Princeton 95**
  - OPAL overall Physics Coordinator (01-02) & New Particles Searches Convenor (97-00)
  - ATLAS LAr testbeam software coordinator
  - Detector Control-System Coordinator

The Particle Physics Faculty at Victoria

- **C. Picciotto (68)** **PhD UC-Santa Barbara 68**
  - Weak Decay Theory, Department Chair 1998-2003
  - Secretary-Treasurer of IPP
- **M. Pospelov (2002)** **PhD Budker Inst. 94**
  - Particle phenomenology, physics beyond the Standard Model, supersymmetry
  - Astroparticle physics and cosmology
- **M. Roney (96)** **PhD Carleton 89**
  - Electroweak, drift chambers and B & tau physics (OPAL, BaBar, ATLAS)
  - BaBar Run Coordinator (2003)
  - BaBar Executive board (1999-2001) and International Finance Committee (2001-), Department Chair 2003-
- **R. Sobie (92)** **PhD Toronto 85**
  - OPAL tau physics coordinator (1998-2002) and Canadian representative on ATLAS International Computing Board
  - Spokesperson for Victoria CFI Computer Storage Award 6M$ CFI & BCKDF, 1M$ IOF
- **A. Astbury (83) (retired)** **PhD Liverpool 61**
  - Chairman Int. Review Com. Muon Ionization Cooling Exp't. (MICE), RAL
  - President Elect of IUPAP (International Union of Pure and Applied Physics)
  - Director of TRIUMF (1994-2001)

Graduate Student Record

- **D. Britton, PhD (Bryman,Robertson)** **Faculty Imperial College, University of London**
- **P. Schenk, PhD (Astbury) Gov. Gen. Gold Medal**

1995 - present

- **M. Rosvick, PhD** "Measurement of the Neutral Current in the Standard Model Using the Tau Polarization Asymmetries Determined from the Decay" 1995 (Keeler).
- **J. Steuerer, PhD** "Measurement of the Product Branching Ratio" 1995 (Astbury)
- **P. Knowles, PhD** "Muonic Processes in Solid Hydrogen Films." 1996 (Beer)
- **M. Vincter, PhD "A Precision Measurement of the Ratio of the Effective Vector to Axial-Vector Couplings of the Weak Neutral Current at the Z0 Pole." 1996 (Keeler), Faculty Member of University of Alberta.**
- **M. Welsh, PhD** "I. The Form Factor, II. Validity of Soft Photon Amplitudes, III. Soft Photon Excess in Hadron Scattering." 1996 (C. Picciotto)
- **P. Hu, MSc** "A Study of the Response of the OPAL Calorimeter to Hadrons." 1996 (Keeler).
- **J. Maier, MSc** "The Wolfenstein-Gerstein Effect in Solid Protium-Deuterium Targets." 1997 (Beer)

Graduate Student Record

- **S. Richardson, PhD** "A Study of Some Rare Radiative Meson Decays", 1998 (Picciotto)
- **J. White, PhD** "Testing Lepton Universality using One-Prong Hadronic Tau Decays", 1998 (Sobie, Lefebvre)
- **S. Bishop, MSc** "A Low Noise Lifetime Measurement of Electrons Drifting in Liquid Argon", 1998 (R.K. Keeler, R. Sobie)
- **L. Stumpf, MSc** "A Measurement of the Branching Ratio of the Decay of the Lepton to Five Charged Hadrons", 1998 (R. Sobie, R.K. Keeler)
- **T. Porcelli, PhD** "Measurements of Muon Catalyzed dt Fusion in Solid HD" 1999 (Beer)
- **S. Robertson, PhD "A Measurement of the Tau Electronic Branching Ratio", 1999 (R. Sobie, R. Keeler). Governor General's Gold Medal - Now IPP Scientist McGill**
- **I. Lawson, PhD** "Neutral Kaon Production from One-prong Tau Decays", 2000 (Keeler, Sobie)
- **D. O'Neil, PhD "Performance of the ATLAS Hadronic Endcap Calorimeter and The Physics of Electroweak Top Quark Production at ATLAS", 2000 (M. Lefebvre) Faculty member SFU**

Graduate Student Record

- **D. Fortin MSc** "Performance of the ATLAS Hadronic Endcap Calorimeter Modules to Electrons and Pions", 2001 (Lefebvre).
- **P. Jackson, MSC** "Hypothesis Testing Variables Applied to Trajectory Fitting in the BaBar Experiment", 2001 (Kowalewski)
- **C. Bird, MSc** "Infrared Regularization in Relativistic Chiral Perturbation Theory" 2001 (Picciotto)
- **C. Brown, MSc** "A Study of the Leptonic Branching Ratios of the Tau at *BABAR*" 2001 (Roney).
- **K. Graham, PhD** "Precision Determination of the Electroweak Mixing Angle and Test of Neutral Current Universality from the Tau Polarization Measurements at OPAL" 2001 (Roney).
- **M. Dobbs, PhD** "Probing the Three Gauge-boson Couplings in 14 TeV Proton-Proton Collisions" 2002 (M. Lefebvre). 1st Owen Chamberlain Fellow at LBL
- **B. Vachon PhD "Search for Excited Charged Leptons in Electron-Positron Collisions" 2002 (McPherson, Sobie). Gov. Gen. Gold Medal**
- **L. Kormos PhD** "A Measurement of the Tau to Muon Branching Ratio" 2003 (Sobie, Keeler).

23 degrees by 22 individuals (16 men, 6 women) since 1995

3 Governor General's Gold Medals

3 in faculty positions & 1 IPP Research scientist

Present students: 2 NSERC PGS, 1 FCAR, 3 UVic Fellowships

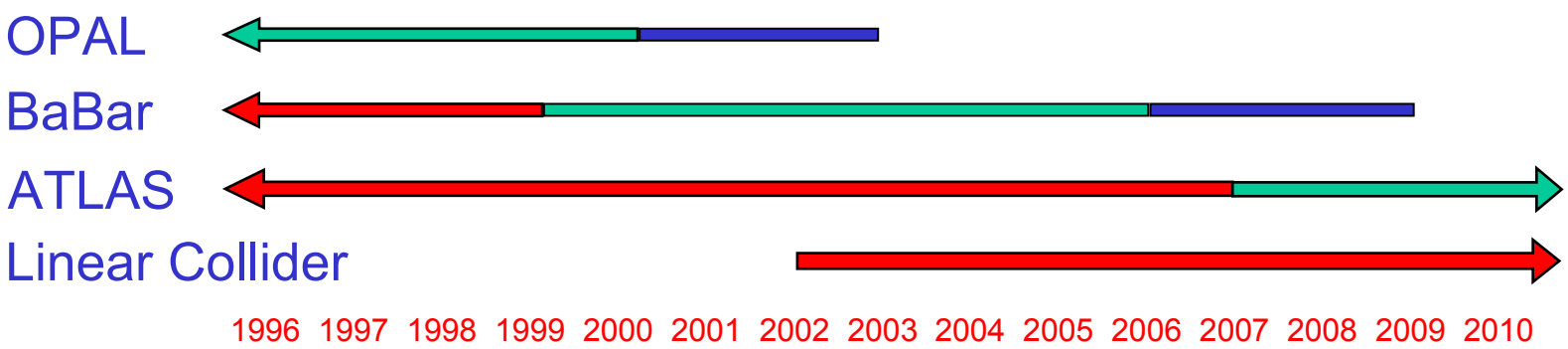
Undergraduate Student Supervision

HEP Undergraduate Students since 1997

Student's Name	Group and Supervisor	Period of Employment
ALLAN, Jennifer	ATLAS – R. Sobie	Jan-Apr 2003
BENNING, Manj	ATLAS/OPAL – R. Sobie	Jan-Apr 2003
GABLE, Ian	ATLAS – M. Lefebvre	May-Aug 2003, May-Aug 2002
KLEKTAU, Lila	ATLAS – R. Sobie	Sep-Dec 2003
VANDERSTER, Dan	ATLAS – R. Sobie	Sep-Dec 2002
ZWIERS, Ian	ATLAS – R. Sobie	May-Aug 2002
SMECHER, Graeme	ATLAS – R. Sobie	Jan-Apr 2002
STARKE, Tamara	ATLAS – M. Lefebvre	May-Aug 2002
GUILLAUME, Girard	ATLAS – M. Lefebvre	May-Aug 2001
LINDNER, John	ATLAS – R. Keeler	Jan-Apr 2000
GROULX, Sarah	ATLAS – M. Lefebvre	May-Aug 1998
MACDONALD, Robert	ATLAS – R. Keeler	May-Aug 1999
MCDONALD, Robbi	ATLAS – R. Sobie	May-Aug 2000
MUZZERALL, Erica	ATLAS – R. Keeler	May-Aug 2001
LINDNER, John	ATLAS MIG – M. Lefebvre	Aug-Dec 2001
WIGGINS, Wendy	ATLAS MIG – M. Lefebvre	Feb-Aug 2002
KING, Greg	BaBar – M. Roney	Jan-Aug 2002
NUGENT, Ian	BaBar – M. Roney	May-Aug 2002
MUELLER, Eilif	BaBar – M. Roney	May-Aug 2001
GIFFORD, Jonas	BaBar – R. Kowalewski	May-Aug 2000
DAY, Ben	BaBar – M. Roney	Jan-Apr 2000
DESROCHES, Louis	BaBar – R. Kowalewski	Jan-Apr 1999
COPPIN, Kristen	BaBar – M. Roney	May-Aug 1997
CHAPPLE, Erin	OPAL – R. Keeler	May-Aug 2000
CAMPSALL, Paul	OPAL – R. Keeler	May-Aug 1999
BEAUCHEMIN, Catherine	OPAL – R. Keeler	Jul-Aug 1999
PEEBLES, Dan	OPAL – R. Keeler	Jan-Apr 2001
BÉLANGER-CHAMPAGNE, C.	TPC – D. Karlen	May-Aug 2003
HOFFMAN, Brie	TPC – D. Karlen	May-Aug 2003

Research Overview

- Theory
  - particle phenomenology, astroparticle physics and cosmology
- Three large projects
  - OPAL (CERN) data analysis being finalized
  - BaBar (SLAC) started data taking in 1999
    - will continue running for several years
  - ATLAS (CERN) is under construction
    - first beam for physics expected in 2007



- Interests beyond ATLAS
  - Linear Collider
  - neutrino physics

Conclusion

We have a research program that is based on:

- Exploring the latest theoretical developments.
- Collecting and analyzing data at BaBar.
- Preparing the ATLAS detector and analysis programs.
- Developing prototype detectors for the Linear Collider.

The Victoria group has:

- An excellent track record for training graduate and undergraduate students as well as engineers, technologists and postdoctoral fellows.
- Significant participation in the planning and operating organizations of our field.