3RD ANNIVERSARY

Celebration

a series of short talks, a poster session and a reception

The irmacs Centre

APRIL 3, 2008

Welcome to the IRMACS Centre's 3rd Anniversary celebration. We'd like to take this opportunity to extend our thanks to all of the project leaders, members, collaborators, visitors and staff that have helped make IRMACS such a success. Our vision of building an interdisciplinary centre that supports and facilitates collaborative research within Simon Fraser and its greater community has exceeded all expectations. We would like to thank you for making the success of the Centre possible and invite you to enjoy the talks, the poster session and the reception.

Peter, Pam & Veso

A special thanks to our Board of Trustees & our Management Committee.

The IRMACS Centre 3rd Anniversary Celebration

Event Schedule

April 3, 2008

2:00 pm
Opening remarks

"Life at IRMACS"
A series of short talks

Mr. Andy Gavel, student,
The School of Contemporary Arts

Ms. Azadeh Alimadad, Ph.D. student,
Complex Systems Modelling Group

Mr. Michael Coons, Ph.D. student,
Department of Mathematics

Ms. Carolyn Huston, Ph.D. student,
Department of Statistics

3:30 pm
Poster Session
(see map and list of authors & titles)
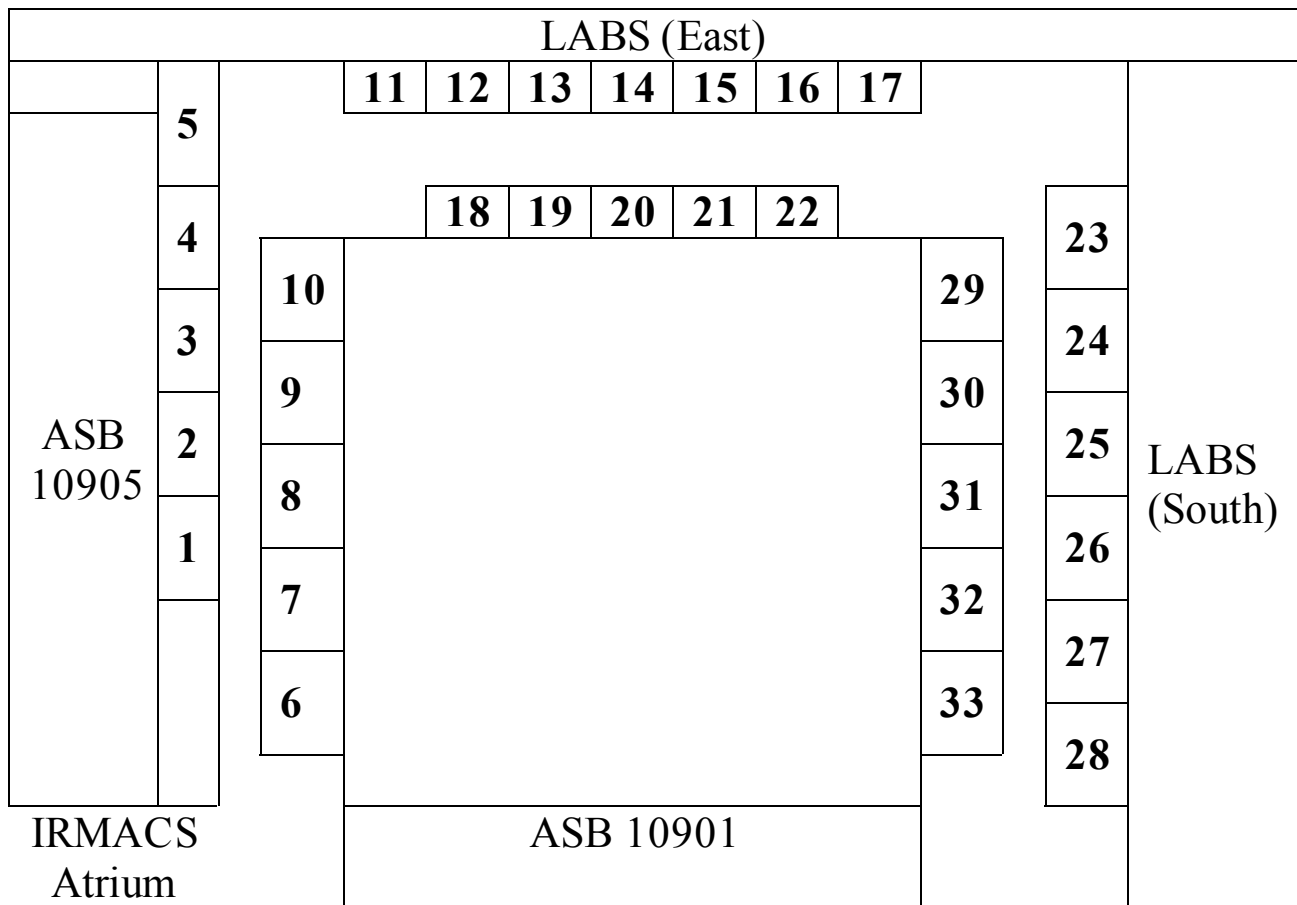
4:00 pm – 5:30 pm
Reception, 3D movies & prizes

Thank you to our 300+ members spanning all 7 faculties of Simon Fraser University. Our 55 current project leaders are listed below:

Peter Anderson	Veselin Jungic
Tom Archibald	Bozena Kaminska
Faisal Beg	Mary-Catherine Kropinski
Lynne Bell	Petr Lisonek
Derek Bingham	Brad McNeney
Patricia Brantingham	Bojan Mohar
Felix Breden	Michael Monagan
Fiona Brinkman	Arne Mooers
Tom Brown	David Muraki
Nils Bruin	George Nicholas
Stephen Campbell	Ash Parameswaran
Cedric Chauve	Gary Parker
Brian Corrie	Shahram Payandeh
Vahid Dabbaghian	Levon Pogosian
Henry Daniel	Rick Routledge
Charmaine Dean	Alexander Rutherford
John Dill	Cenk Sahinalp
Brian Fisher	Carl Schwarz
Ramo Gençay	Randy Sitter
Uwe Gläesser	Tamon Stephen
Jinko Graham	Steve Thompson
William A. Gruver	Ljiljana Trajkovic
Warren Hare	Alexa van der Waall
Mike Hayden	Krisztina Vasarhelyi
Michael Hayes	Les Vertesi
Bret Heinrich	K.S. Viswanathan
Pavol Hell	Noham Weinberg
	Martin Zuckermann

The IRMACS Centre
3rd Anniversary Celebration
April 3rd, 2008

Poster Session Layout

LABS (East)

| 11 | 12 | 13 | 14 | 15 | 16 | 17 |

5

| 18 | 19 | 20 | 21 | 22 |

4

10

23

3

9

29

24

ASB 10905

2

30

25

8

31

LABS (South)

1

26

7

32

27

6

33

28

IRMACS Atrium

ASB 10901

North

APPLIED SCIENCES BUILDING

Poster Session Titles and Authors
IRMACS Project Leaders are shown in bold.

1. Title: *Selective Passive Shielding*
   Authors: C. P. Bidinosti and **M.E. Hayden**
   Affiliation: Department of Physics, Simon Fraser University

2. Title: *Communication Network Research*
   Authors: Laxmi Subedi, Mohamadreza Najiminaini, and **Ljiljana Trajkovic**
   Affiliation: School of Engineering Science, Simon Fraser University

3. Title: *Liquidity-Induced Dynamics in Futures Markets*
   Authors: Stephen Fagan and **Ramo Gençay**
   Affiliation: Department of Economics, Simon Fraser University

4. Title: *Crash of '87 – Was it Expected? Aggregate Market Fears and Long Range Dependence*
   Authors: Nikola Gradojevic and **Ramo Gençay**
   Affiliation: Department of Economics, Simon Fraser University

5. Title: *Mark-recapture Jolly-Serber abundance estimation with classification uncertainty*
   Authors: Wendell O. Challenger and **Carl J. Schwarz**
   Affiliation: Department of Statistics and Actuarial Science, Simon Fraser University

6. Title: *Design on Non-Convex Regions: Optimal Experiments for Spatial Process Prediction with Applications to Industrial Process*
   Authors: M.T. Pratola and **D. Bingham**
   Affiliation: Department of Statistics and Actuarial Science, Simon Fraser University

7. Title: *Haptic teleoperation over the Internet*
   Authors: Renji Chen and **Shahram Payandeh**
   Affiliation: School of Engineering Science, Simon Fraser University

8. Title: *Cooperative Hybrid Tracking for Event Monitoring Systems*
   Authors: Yan Lu and **Shahram Payandeh**
   Affiliation: School of Engineering Science, Simon Fraser University

9. Title: *Equiangular Lines in Complex Spaces*
    Author: Mahdad Khatirinejed
    Affiliation: Department of Mathematics, Simon Fraser University

10. Title: *Exponential Sums over Finite Fields*
    Authors: Kseniya Garaschuk and **Petr Lisonek**
    Affiliation: Department of Mathematics,
                  Simon Fraser University

11. Title: *Ontological Engineering: A Mathematical Investigation of Prototypicality*
    Authors: Paul Nicholson and Nathalie Prevost
    Affiliation: School of Interactive Arts and Technology, Simon Fraser University

12. Title: *The Height of the 3,234,846,615th Cyclotomic Polynomial is Big (2,888,582,082,500,892,851)*
    Authors: Andrew Arnold and **Michael Monagan**
    Affiliation: CECM and Department of Mathematics,
                  Simon Fraser University

13. Title: *Predicting Survival Time after Coronary Bypass Surgery in BC*
    Authors: Elizabeth Juarez, Darby Thompson, and **Charmaine Dean**
    Affiliation: Department of Statistics and Actuarial Science,
                  Simon Fraser University,
                  The EMMES Corporation, Rockville, MD

14. Title: *Zero-Inflated Spatial Models*
    Authors: Laurie Ainsworth and **Charmaine Dean**
    Affiliation: Department of Statistics and Actuarial Science,
                  Simon Fraser University

15. Title: *Exploring the Seasonality of the Area Burned by Forest Fires in Ontario*
    Authors: Douglas G. Woolford, **Charmaine B. Dean**, David L. Martell,
                  W. John Braun
    Affiliation: Department of Statistics and Actuarial Science,
                  Simon Fraser University,
                  Faculty of Forestry, University of Toronto,
                  Department of Statistical and Actuarial Sciences,
                  University of Western Ontario

16. Title: *InnateDB – Facilitating Systems Level Analyses of the Mammalian Innate Immune Response*

Authors: David J. Lynn, Geoffrey L. Winsor, Aaron Barsky, Jennifer L. Gardy, Fiona M. Roche, Timothy H.W. Chan, Matthew R. Laird, Calvin Chan, Nicolas Richard, Naisha Shah, Raymond Lo, Misbah Naseer, Jaimmie Que, Melissa Yau, Michael Acab, Dan Tulpan, Matthew Whiteside, Karsten Hokamp, Tamara M. Munzner, Bernadette Mah, Robert E.W. Hancock, **Fiona S.L. Brinkman**

Affiliation: Department of Molecular Biology and Biochemistry, SFU,
Centre for Microbial Diseases and Immunity Research, UBC,
Department of Computer Science, UBC,
Smurfit Institute of Genetics, Trinity College Dublin

17. Title: *Modeling Neural Activity with a Hardware Brain Phantom*

Authors: Teresa Cheung, Joseph Wong, **Ash Parameswaran**, Arif Babul, **Faisal Beg**, Karen Kavanagh, Andrew Jirasek

Affiliation: School of Engineering Science, Simon Fraser University,
Down Syndrome Research Foundation, Burnaby, B.C.,
Department of Physics, University of Victoria

18. Title: *Mechanical and Kinetic Computational Model for Myosin-V Walking Mechanism*

Authors: Erin M. Craig and Heiner Linke

Affiliation: Department of Physics, University of Oregon

19. Title: *Embedding Graphs in the Extended Grid, with Islands and Bridges*

Authors: Michael Coury and **Pavol Hell**

Affiliation: School of Computing Science, Simon Fraser University

20. Title: *Wearable Wireless Physiological Sensors For Healthcare Applications*

Authors: Y. Chuo, B. Ngai, B. Carmichael, J. Patel, K. Tavakolian, M. Marzencki, **B. Kaminska**

Affiliation: School of Engineering Science, Simon Fraser University

21. Title: *Stochastic Analysis of Life Insurance Surplus*

Authors: Natalia Lysenko and **Gary Parker**

Affiliation: Department of Statistics and Actuarial Science,
Simon Fraser University

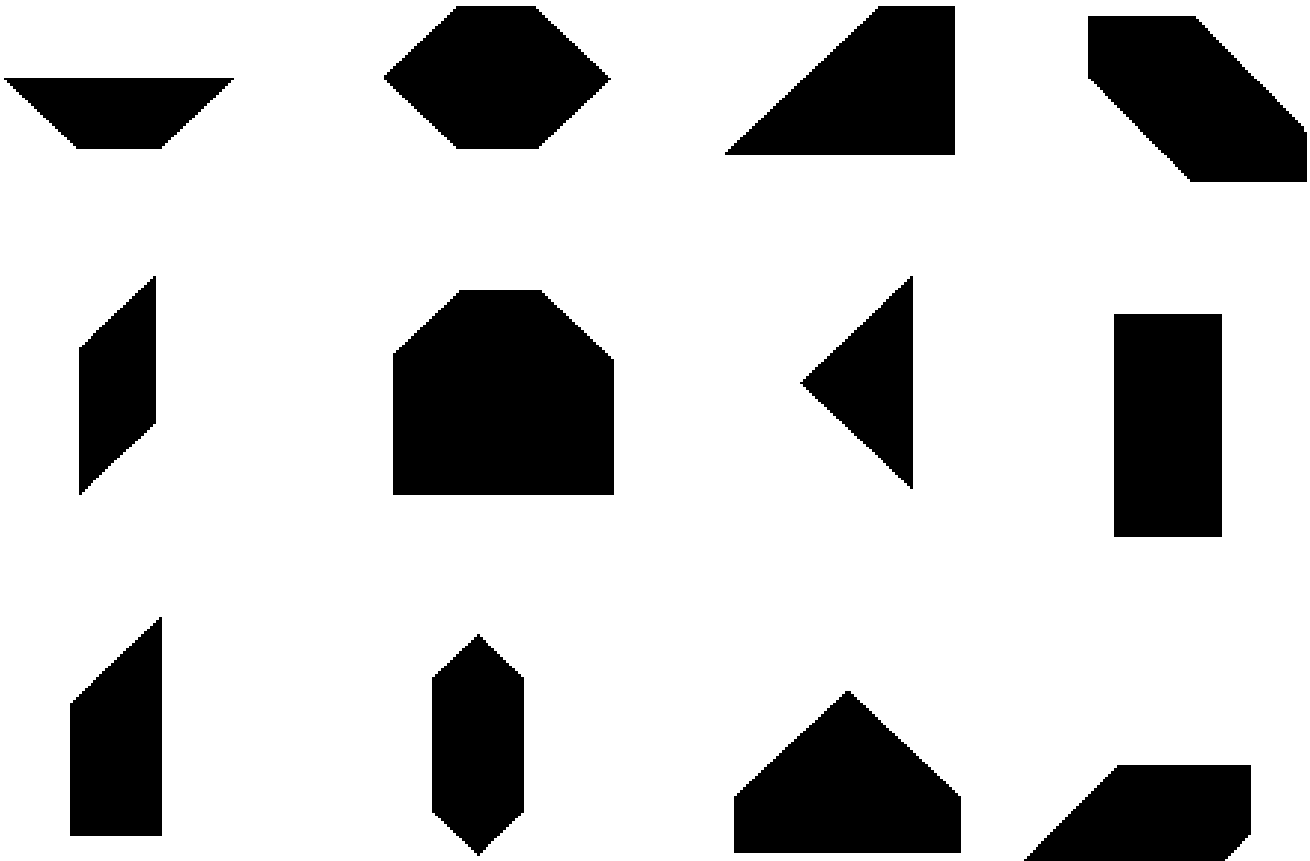**22.** Title: *Math Girl*
     Authors: Corinna McDonald and **Veselin Jungic**
     Affiliation: The IRMACS Centre and Department of Mathematics,
                            Simon Fraser University

23. Title: *Weight Cycling and Weight Gain Across All BMI Levels in the NLS Data Set*
     Authors: **Krizstina Vasarhelyi**, Azadeh Alimadad, Warren L. Hare, Jenny Li, Alexander Rutherford, Holly Buhler, Carrie L. Matteson, and Diane T. Finegood
     Affiliation: CSMG Obesity Group, The IRMACS Centre
                            Department of Kinesiology, Simon Fraser University

24. Title: *A Cellular Automata Model of the Spread of HIV in a Community of Injection Drug Users*
     Authors: **Vahid Dabbaghian**, Krizstina Vaserhelyi, Natasha Richardson, Peter Borwein, and A.R. Rutherford
     Affiliation: Cellular Automata Group, The IRMACS Centre, Simon Fraser University

25. Title: *Revisiting Treatment Strategies: Variable Viral Load, High CD4+ Counts and HIV Transmission*
     Authors: Azadeh Alimadad, **Krizstina Vaserhelyi**, Alexander R. Rutherford
     Affiliation: CSMH HIV Project, The IRMACS Centre, Simon Fraser University

26. Title: *Simulation Modelling of the Criminal Justice System*
     Authors: **V. Dabbaghian**, E. Fowler, C. Giles, N. Richardson, A. Rutherford, A. van der Waall
     Affiliation: The Criminal Justice System Project, The IRMACS Centre, Simon Fraser University

27. Title: *Elliptic curves with isomorphic p-torsion group for small p*
     Author: Kevin Doerksen
     Affiliation: Department Mathematics, Simon Fraser University

28. Title: *Circular Techniques for Summarizing Acoustic Tag Data over Extensive Time Periods*
     Authors: Carolyn Huston, Jeff Marliave, David Welch
     Affiliation: Department of Statistics and Actuarial Science, Simon Fraser University, Vancouver Aquarium, Vancouver, B.C. David Welch, Kintama Research, Nanaimo, B.C.

29. Title: *Sampling disease gene ancestries conditional on observed haplotype data*
     Authors: K.M. Burkett, **J. Graham**, and **B. McNeney**
     Affiliation: Department of Statistics and Actuarial Science,
                        Simon Fraser University

30. Title: *Inferring Gene-by-Environment Interaction: Do Transmission Rates Reflect Genotype Relative Risks of Disease?*
     Authors: J.-H. Shin, **B. McNeney**, and **J. Graham**
     Affiliation: Department of Statistics and Actuarial Science,
                        Simon Fraser University

31. Title: *Forecasting Experimental Constraints on Dark Energy*
     Authors: Joel Zylberberg, Gong-bo Zhao, and **Levon Pogosian**
     Affiliation: Department of Physics, Simon Fraser University

32. Title: *Computational Graph Theory @ Irmacs*
     Authors: Matt DeVos, Luis Goddyn, Ken-ichi Kawarabayashi, **Bojan Mohar**, Robert Šámal
     Affiliation: Department of Mathematics, Simon Fraser University

33. Title: *Conservation Phylogenetics*
     Authors: Anna Drake, Klaas Hartmann, Tyler Kuhn, Karen Magnusson-Ford, Emily Meuser, Clea Moray, Dave Redding, Will Stein and **Arne Mooers**
     Affiliation: Department of Biology, Simon Fraser University

Tangram

The IRMACS logo is made up of two complete sets of tangrams. A tangram is an ancient Chinese moving piece puzzle, consisting of 7 geometric shapes. Fu Tsiang Wang and Chuan-chin Hsiung mathematically proved in 1942 the existence of a finite set of patterns referred to as "convex." In this context, it means that there are no indentations along the outside edge. There are only 13 silhouettes that qualify. Below are 12. Each is made up of the 7 geometric shapes in the tangram puzzle. Which shape is missing?

April 3, 2008

www.irmacs.sfu.ca