



Workshop on

Catastrophic Environmental Risks

Sunday, June 9 to Tuesday, June 11, 1996

to be held at
The Fields Institute
Toronto, Ontario, Canada

Organizing Committee: **J. Chadam** *The Fields Institute*, **G. Chichilnisky** *Columbia University (Chair)*, **R. Dembo** *Algorithmics Inc.*, **G. Heal** *Columbia University*, **C. Heyde** *Columbia University*, **M. Hirsch** *University of California at Berkeley*, **A. Kubursi** *McMaster University*, **D. Turcotte** *Cornell University*

Sponsored by The Fields Institute; Columbia University's Program on Information and Resources; the United Nations Educational, Scientific and Cultural Organization (UNESCO); the Bernoulli Society and the Insurance Information Institute.

Invited Speakers Include:

Y. Baryshnikov *University of Hull*
M. Benaim *Université Paul Sabatier*
G. Chichilnisky *UNESCO Chair in Mathematics and Economics, Columbia University*
S. Cowan *Sustainable Systems Design*
R. Dembo *Algorithmics Inc.*
D. Foley *Barnard College*
J. Gardner *Sun Life Assurance*
G. Heal *Columbia University*

C. Heyde *Columbia University*
M. Hirsch *University of California at Berkeley*
A. Kamupingene *University of Namibia*
A. Kazakov *Ontario Ministry of Transportation*
M. Kiernan *Innovest International*
A. Kubursi *McMaster University*
R. Leadbetter *University of North Carolina*

Y. Lin *Columbia University*
S. Mooney *Insurance Information Institute*
J. Rabinovich *Universidad de Buenos Aires*
D. Taylor *University of Witwatersrand*
J. Teugels *Katholieke Universiteit Leuven*
D. Turcotte *Cornell University*

Global environmental risks such as climate change and atmospheric ozone depletion have caught the world's scientific attention, and have led to interesting and challenging mathematical problems. These include new statistical theories for the analysis and evaluation of catastrophic risks, complex dynamical systems to study weather patterns, topological formulations of financial markets and arbitrage, and large scale computing designed to understand, simulate, forecast and visualize all of the above. This three-day workshop will focus on and deepen these mathematical developments, concentrating on two mathematical problem areas. One arises from the need to analyze and optimize decisions when facing potentially catastrophic risks, and the other describes stochastic calculus and topological issues arising from the use of financial markets to hedge such catastrophic risks.

The workshop will discuss applications of the mathematical results to timely policy issues, such as the introduction of new instruments which can hedge global risks for example, catastrophe futures and derivatives based on the rights to emit pollutants into the planet's atmosphere, and an International Bank for Environmental Settlements (IBES) which can serve as a clearing house for global environmental markets.

For registration information please
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or fax: (416) 348-9385