

Fields Institute Communications

VOLUME 64

The Fields Institute for Research in Mathematical Sciences

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Infinite Dimensional Dynamical Systems



The Fields Institute for Research
in the Mathematical Sciences



Springer

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ISSN 1069-5265

ISSN 2194-1564 (electronic)

ISBN 978-1-4614-4522-7

ISBN 978-1-4614-4523-4 (eBook)

DOI 10.1007/978-1-4614-4523-4

Springer New York Heidelberg Dordrecht London

Library of Congress Control Number: 2012948195

Mathematics Subject Classification (2010): 34-XX, 35-XX, 37-XX

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Cover design: Drawing of J.C. Fields by Keith Yeomans

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Preface

In the typically colorful fall of 2008, a conference on Infinite Dimensional Dynamical Systems was held at York University, Toronto from September 24–28. Among the 80 participants from all over the world, 48 invited speakers presented their work covering a wide range of topics of infinite-dimensional dynamical systems generated by parabolic partial differential equations, hyperbolic partial differential equations, solitary equations, lattice differential equations, delay differential equations, and stochastic differential equations. This conference was also dedicated to Professor George Sell from University of Minnesota on the occasion of his 70th birthday.



Sell obtained his PhD degree from the University of Michigan in 1962. He joined the faculty of the School of Mathematics at the University of Minnesota in 1964, following 2 years as a Benjamin Pierce Instructor at Harvard University. At Minnesota, he was the cofounder of the Institute for Mathematics and Its Applications (IMA) and the founding director of the Army High Performance Computing Research Center. He is the founding editor of the *Journal of Dynamics and Differential Equations* and has been serving on the editorial boards of several

other professional journals. Sell is a world-renowned leader in the field of dynamics of differential equations. An author of nine books and over 100 research articles, he has been an originator and pioneer in many important areas in this field, including nonautonomous dynamical systems, skew-product flows, invariant manifolds theory, infinite-dimensional dynamical systems, approximation dynamics, and fluid flows. He is a recipient of many honors and awards including an honorary doctorate degree from the University of St. Petersburg and an invited address at the 1982 International Congress of Mathematicians.

Infinite-dimensional dynamical systems are generated by evolutionary equations describing the evolution in time of systems whose status must be depicted in infinite-dimensional phase spaces. Studying the long-term behaviors of such systems is important to our understanding of their spatiotemporal pattern formation and global continuation, and has been among the major sources of motivation and applications of new development in nonlinear analysis and other mathematical theories. Theories of infinite-dimensional dynamical systems have also found more and more important applications in the physical, chemical, and life sciences.

Each of the 48 invited speakers gave a 40-minute lecture. The lectures are collected and published in this special volume of the Fields Institute Communications series, dedicated to George Sell.

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