

Titre / Title :

Modèles exactement résolubles et manifestations de symétries. Conférence célébrant le 60e anniversaire de Luc Vinet Exact Solvability and Symmetry Avatars. Conference held on the occasion of Luc Vinet's 60th birthday.

Date :

2014-08-25 - 2014-08-29

Org :

Decio Levi (Università degli Studi Roma Tre) Pavel Winternitz (Université de Montréal) Willard Miller Jr. (University of Minnesota) Yvan Saint-Aubin (Université de Montréal)

Conférenciers / Speakers :

Matthias Christandl (University of Copenhagen ) Gabriel Coutinho (University of Waterloo ) Eric D'Hoker (UCLA ) Patrick Desrosiers (Université Laval ) Philippe R. Di Francesco (University of Illinois at Urbana-Champaign ) Charles F. Dunkl (University of Virginia ) Erdal Emsiz (Pontificia Universidad Católica de Chile ) Adrian Mauricio Escobar Ruiz (UNAM, Mexico ) Edward Farhi (6-300 MIT ) Roberto Floreanini (University of Trieste ) Vincent Genest (Université de Montréal ) Yves Grandati (Université de Lorraine-Site de Metz ) F. Alberto Grünbaum (University of California, Berkeley ) John Harnad (Concordia University ) Mourad E. H. Ismail (University of Central Florida ) Alexander R. Its (IUPUI ) Roman W. Jackiw (MIT ) Niky Kamran (McGill University ) Erik Koelink (Radboud Universiteit Nijmegen ) Tom H. Koornwinder (University of Amsterdam ) Luc Lapointe (Universidad de Talca ) Decio Levi (Università degli Studi Roma Tre ) Francisco Marcellán (Univ. Carlos III de Madrid ) Pierre Mathieu (Université Laval ) Willard Miller Jr. (University of Minnesota ) Alexi Morin-Duchesne (Université Catholique de Louvain ) Alexei V. Penskoï (Independent University of Moscow ) Duong H. Phong (Columbia University ) George Pogosyan (Universidad de Guadalajara ) Sarah Post (University of Hawaii at Manoa ) Dennis W. Stanton (University of Minnesota ) Aleksander Strasburger (Warsaw University of Life Sciences-SGGW ) Keti Tenenblat (Universidade de Brasilia ) Paul M. Terwilliger (University of Wisconsin ) Alexander Turbiner (UNAM ) Hideaki Ujino (Gunma National College of Techno. ) Wojciech Zakrzewski (Durham University ) Oleksiy Zhedanov

(Donetsk Inst. for Physics & Techno. ) Jan Felipe van Diejen (Universidad de Talca ) Libor Snobl (Czech Technical University in Prague )

Nombre de participants / Number of participants :

67

Résumé de l'activité / Activity resume :

The conference "Exact Solvability and Symmetry Avatars" celebrated the sixtieth birthday of Professor Luc Vinet. Luc's scientific contributions are in several different areas of mathematics and physics. They share a common theme, that of symmetries in nature and science. The conference thus brought together scientists who would usually not attend the same event. It turned out that they were all able to communicate easily and fruitfully. Indeed all participants use symmetries, groups, algebras and their representation theory as everyday tools.

One of Luc's earliest research topics was the use of symmetries to study the dynamics of classical and quantum systems. This includes the problems of separation of variables, integrability and superintegrability, in both continuous and discrete realms. This is currently a very active field of research and several talks were devoted to new developments in this area (A.M. Escobar Ruiz, D. Levi, W. Miller Jr, G. Pogosyan, S. Post, A. Turbiner and W.Zakrzewski). The study and classification of orthogonal polynomials are an important part of Luc's current interests and this field was well-represented in the talks (P. Desrosiers, C.F. Dunkl, E. Emsiz, V. Genest, Y. Grandati, M. Ismail, E. Koelink, T. Koornwinder, L. Lapointe, F. Marcellán, P. Mathieu, D.W. Stanton, J.F. van Diejen, O. Zhedanov). Quantum information theory also makes use of the idea of symmetries. While Luc has not published many papers in this field, his work there also had an important impact. Many leaders of this recent field presented their results (M. Christandl, G. Coutinho, E. Farhi, R. Floreanini). Several other fields were represented, relating various aspects of symmetry and integrability: coherent states (A. Strasburger), differential and spectral geometry (N. Kamran, A.V. Penskoi, K. Teneblat), cellular automata (H. Ujino), "integrable" combinatorics (P. Di Francesco, J. Harnad), integrable lattice models (A. Morin-Duchesne), isomonodromy and conformal field theory (A.R. Its), quantum and string theory (E. D'Hoker, R. Jackiw, D.H. Phong), quantum

walks (F.A. Grunbaum) , and fundamental results in algebras and representation theory (L. Snobl, P.M.Terwilliger).

The celebration provided an ideal occasion for many young scientists to thank Luc for his mentoring. Several were among the speakers: Luc Lapointe, Sarah Post, Jan Felipe van Diejen and Vincent Genest who he is currently finishing his PhD under Luc's supervision. Others acknowledged gratefully the influence of Luc's seminal ideas on their work, his pregnant questions during talks and the pleasure of working with him on scientific projects.