



## Editorial Introduction to the Special Issue on MCM 2017

The eleventh edition of the [International Conference on Monte Carlo Methods and Applications \(MCM 2017\)](#), was held in Montreal, Canada, on July 3 to 7, 2017. This conference, formally called the *IMACS Seminar on Monte Carlo Methods*, is a mathematically-oriented biennial meeting devoted to the study of stochastic simulation and Monte Carlo methods, both from the theoretical viewpoint and in terms of their effective application in different areas, such as finance, statistics, computer graphics, computational physics, biology, chemistry, and scientific computing in general. It is one of the most prominent conference series devoted to research on the mathematical aspects of stochastic simulation and Monte Carlo methods.

The conference topics include Monte Carlo methods and principles; pseudorandom number generators; low-discrepancy point sets and sequences in various spaces; quasi-Monte Carlo and randomized quasi-Monte Carlo methods; simulation of random variates and random processes; variance reduction and efficiency improvement methods for simulation; rare-event simulation methods; multilevel Monte Carlo methods; stochastic optimization methods based on simulation and random search; simulation algorithms for highly-parallel computing environments; tractability and complexity analysis of multivariate problems (integration, approximation, etc.); Monte Carlo and quasi-Monte Carlo methods for stochastic differential equations and partial differential equations; Markov chain Monte Carlo; particle filters, splitting, and other adaptive learning methods; Monte Carlo methods in machine learning; and applications in physics, chemistry, biology, economy, finance, statistics, management, medical science, computer graphics, etc. This list is not exhaustive.

The 2017 edition had 9 invited plenary speakers giving a one-hour presentation and 140 regular 30-minute talks. There was 151 registered participants. Authors of the talks were invited to submit articles based on their presentation at the conference. All submitted manuscripts were carefully reviewed and 11 papers were selected for publication in this special issue.

The reviewing process was handled by Ronald Cools, Ivan Dimov, Christian Lécot, Pierre L'Ecuyer, Wolfgang Ch. Schmid, who are all members of the steering committee for the conference series, and Thomas Müller-Gronbach, who is associate editor for the journal.

The conference was supported by the [Centre de Recherches Mathématiques \(CRM\)](#), the [Groupe d'Études et de Recherche en Analyse des Décisions \(GERAD\)](#), the [Institute for Data Valorization \(IVADO\)](#), the [Université de Montréal](#), and the [Canada Research Chair in Stochastic Simulation and Optimization](#).

We are grateful to all members of the Steering Committee, Program Committee, organizers of special sessions, speakers, and session chairs, for making MCM 2017 an outstanding scientific event. Karine Hébert (GERAD), Marilyne Lavoie (GERAD), Marie Perreault (GERAD), Suzette Paradis (CRM), and Louis Pelletier (CRM), who took care of the local organization of the conference (logistics, webmaster, abstract submission, registration, posters, program, social events, etc.). They deserve our warmest thanks.

Pierre L'Ecuyer  
Organizer and Chair of MCM 2017  
Université de Montréal, Canada  
URL: <http://www.iro.umontreal.ca/~lecuyer>.

Available online 18 February 2019