

mathematics & finance:



IMPA, Rio de Janeiro, Brazil - November 27th to December 3rd, 2015

CERTIFICATE



We hereby certify that, ***Cassius Marcellus do Carmo Figueiredo***, Instituto Infnet, participated in the Mathematics & Finance: Research in Options 2015, held at Instituto Nacional de Matemática Pura e Aplicada - IMPA - Rio de Janeiro, from November 27 to December 3, 2015 and presented the following poster:
“Determinants of Central Bank of Brazil Intervention on Exchange Rate Market: An Empirical Approach Using Logistic Regression and Artificial Neural Networks”.

Rio de Janeiro, December 3, 2015.

A handwritten signature in black ink, appearing to read 'JZ'.

Jorge P. Zubelli

Organizing Committee



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Research in Options

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We hereby certify that, **Claudio Cardoso Flores**, Instituto Nacional de Matemática Pura e Aplicada, participated in the Mathematics & Finance: Research in Options 2015, held at Instituto Nacional de Matemática Pura e Aplicada - IMPA - Rio de Janeiro, from November 27 to December 3, 2015 and presented the following poster: “**Robust Multivariate Estimates of Location and Scatter Applied to the Optimum Portfolio Selection Problem**”.

Rio de Janeiro, December 3, 2015.

Jorge P. Zubelli

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We hereby certify that, **Francesca Munia Machado**, Instituto Nacional de Matemática Pura e Aplicada, participated in the Mathematics & Finance: Research in Options 2015, held at Instituto Nacional de Matemática Pura e Aplicada - IMPA - Rio de Janeiro, from November 27 to December 3, 2015 and presented the following poster: “**Empirical Evaluation of the Black-Litterman Model**”.

Rio de Janeiro, December 3, 2015.

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We hereby certify that, **Gang Liu, École Polytechnique**, participated in the Mathematics & Finance: Research in Options 2015, held at Instituto Nacional de Matemática Pura e Aplicada - IMPA - Rio de Janeiro, from November 27 to December 3, 2015 and presented the following poster: “**Rare Event Simulation Related To Financial Risks**”.

Rio de Janeiro, December 3, 2015.

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We hereby certify that, **Helder Alan Rojas Molina**, Instituto de Matemática e Estatística, participated in the Mathematics & Finance: Research in Options 2015, held at Instituto Nacional de Matemática Pura e Aplicada - IMPA - Rio de Janeiro, from November 27 to December 3, 2015 and presented the following poster: “**Simple Models of Strings of Characters with Infinite Alphabet with Applications to Order Book Dynamics**”.

Rio de Janeiro, December 3, 2015.

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We hereby certify that, **Leandro Dognini**, Instituto Nacional de Matemática Pura e Aplicada, participated in the Mathematics & Finance: Research in Options 2015, held at Instituto Nacional de Matemática Pura e Aplicada - IMPA - Rio de Janeiro, from November 27 to December 3, 2015 and presented the following poster:
“Applying Analytic Bounds For Multi-period Risk Management”.

Rio de Janeiro, December 3, 2015.

A handwritten signature in black ink, appearing to read 'JZ'.

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We hereby certify that, **Melba Luz Torres Ortiz**, Instituto de Matemática e Estatística, participated in the Mathematics & Finance: Research in Options 2015, held at Instituto Nacional de Matemática Pura e Aplicada - IMPA - Rio de Janeiro, from November 27 to December 3, 2015 and presented the following poster: “**Long-Term behavior of a stochastic model for order book dynamics**”.

Rio de Janeiro, December 3, 2015.

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We hereby certify that, **Sergio Alvares Rodrigues de Souza Maffra**, Instituto Nacional de Matemática Pura e Aplicada, participated in the Mathematics & Finance: Research in Options 2015, held at Instituto Nacional de Matemática Pura e Aplicada - IMPA - Rio de Janeiro, from November 27 to December 3, 2015 and presented the following poster: “**A Comparison of Go-Garch Estimation Methods**”.

Rio de Janeiro, December 3, 2015.

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