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We hereby certify that, ***Alberto Adrego Pinto*** - **Universidade do Porto**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: "**Evolution of corruption in democratic states**".

Rio de Janeiro, December 5th, 2019.

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We hereby certify that, ***Andrea Macrina*** - **University College London**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: “**Term Risk**”.

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We hereby certify that, ***Beatrice Acciaio*** - **London School of Economics and Political Science**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: "**Learning Dynamic Generative Models via Causal Optimal Transport**".

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We hereby certify that, ***Bruno Dupire*** - **Bloomberg - NY**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: "**The Perils of Parameterization**".

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We hereby certify that, ***Diogo Duarte Garcia Pires*** - **Florida International University**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: "**Endogenous Asymmetric Money Illusion**".

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We hereby certify that, ***Ernst Eberlein*** - **Universitat Freiburg - Freiburg - Alemanha**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: "**Variable annuities in a Lévy-based hybrid model with surrender risk**".

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We hereby certify that, ***Jorge P. Zubelli*** - **Khalifa University**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the "**Opening Talk**".

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We hereby certify that, ***Julien Guyon*** - **Bloomberg, Columbia University, and Nyu**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: "**The Joint S\&P 500/VIX Smile Calibration Puzzle Solved: A Dispersion-Constrained Martingale Transport Approach**".

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We hereby certify that, ***Lane Hughston*** - **Goldsmiths University of London**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: "**Lévy-Ito Models in Finance**".

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We hereby certify that, ***Marco Frittelli*** - **Unicersitá Degli Studi di Milano**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: "**Multivariate Systemic Optimal Risk Transfer Equilibrium**".

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We hereby certify that, ***Martino Grasselli*** - **Padova University**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: "**Functional and recursive quantization for a class of non markovian processes**".

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We hereby certify that, ***Max Oliveira de Souza*** - **Universidade Federal Fluminense**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: "**Assessing volatility and model risks in optimal execution**".

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We hereby certify that, ***Mohammad Fesanghary*** - **Bloomberg - NY**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: "**Short-Term Prediction of Major Price Movements and Corporate Actions Using Data-Driven Insights**".

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We hereby certify that, ***Raphael Douady*** - **Université Paris I - Sorbonne**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: "**Managing the Downside of Active and Passive Strategies: Convexity and Fragilities**".

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We hereby certify that, ***Rene Aid*** - **Université Paris IX - Dauphine**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: "**Optimal electricity demand response contracting with responsiveness incentives**".

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We hereby certify that, ***Ryan Donnelly*** - **King´s College London**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: "**Insider Trading with Activism and Residual Risk**".

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We hereby certify that, ***Stefano De Marco*** - **École Polytechnique**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: "**Calibration of stochastic volatility models to Vanillas as a martingale Schrodinger problem**".

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We hereby certify that, ***Stéphane Crépey*** - **Université Evry Val d´Essonne**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: “**Deep XVA Analysis**”.

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We hereby certify that, ***Teemu Pennanen*** - **King´s College London**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: "**Convex duality in nonlinear optimal transport**".

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We hereby certify that, ***William Shadwick*** - **Omega Analysis**, participated in the Mathematics & Finance: Research in Options 2019, held at IMPA, Rio de Janeiro, November 29 – December 05, 2019 and presented the following plenary talk: "**Geometry, Differential Invariants and Improved Tail Risk Measurement**".

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