

French citizen

Birth date: April 22th, 1974

Married, two children

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**Professor of Statistics and Numerical Probabilities**  
**Head of the Alexander Grothendieck Montpellier Institute**  
**UMR CNRS 5149**

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**Positions**

*Since 2015* **Head of the Alexander Grothendieck Montpellier Institute**  
University of Montpellier & CNRS  
UMR CNRS 5149

*Since 2008* University of Montpellier  
**Professor** in Applied Mathematics

*2004 - 2008* **Researcher**, INRIA Saclay, Team Select  
University Paris Sud  
Department of Mathematics

*2002 - 2004* **Assistant professor** in Applied Mathematics  
University Paris-Dauphine  
CEREMADE

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## Education

**2007 Habilitation to advice PhD Students**

University Paris Dauphine, December 14th 2007

Title: *Adaptive Monte Carlo methods and Bayesian statistics*

Coordinator: Christian Robert

Reviewers: Jim Berger, Peter Green, Éric Moulines

Committee: Jean-Pierre Florens, Pascal Massart (president), Éric Moulines, Christian Robert and Judith Rousseau

**2001 Doctor in Applied Mathematics** option Statistic and Probabilities

University Paul Sabatier October 26th 2001

Title: *Quadratic unbiased estimation for models with Toeplitz covariance structure*

**1997 Master in Applied Mathematics** option Statistic and Probabilities

University Paul Sabatier

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## Teaching Experience

- Mathematical statistic
  - Probability
  - Regression models, discrimination and scoring
  - Monte Carlo and Monte Carlo Markov Chains methods
  - Bayesian statistic
  - Models in Population Genetics
  - R coding
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## Research Interests

- Bayesian statistics, Model choice
- Approximate Bayesian Computation
- Monte Carlo methods and importance sampling schemes
- Mixture models
- Population Genetics

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## Publication List

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### Books (2)

- [B2] Jean-Michel Marin and Christian P. Robert (2014) **Bayesian Essentials with R**, Springer Texts in Statistics, Springer, New York
- [B1] Jean-Michel Marin and Christian P. Robert (2007) **Bayesian Core: A Practical Approach to Computational Bayesian Statistics**, Springer Texts in Statistics, Springer, New York
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### Papers published on refereed journals (40)

- [P40] Julien Stoehr, Jean-Michel Marin and Pierre Pudlo (2016) Hidden Gibbs random fields model selection using Block Likelihood Information Criterion, **Stat**, 5(1), 158-172
- [P39] Pierre Pudlo, Jean-Michel Marin, Jean-Marie Cornuet, Arnaud Estoup, Mathieu Gautier and Christian Robert (2016) Reliable ABC model choice via random forests, **Bioinformatics**, 32(6), 859-866
- [P38] Yves Auffray, Pierre Barbillon and Jean-Michel Marin (2014) Bounding rare event probabilities in computer experiments, **Computational Statistics and Data Analysis**, 80, 153-166
- [P37] Jean-Marie Cornuet, Pierre Pudlo, Julien Veyssier, Alexandre Dehne-Garcia, Mathieu Gautier, Raphaël Leblois, Jean-Michel Marin and Arnaud Estoup (2014) DIYABC v2.0: a software to make Approximate Bayesian Computation inferences about population history using Single Nucleotide Polymorphism, DNA sequence and microsatellite data, **Bioinformatics**, 30(8), 1187-1189
- [P36] Jean-Michel Marin, Natesh Pillai, Christian P. Robert and Judith Rousseau (2014) Relevant statistics for Bayesian model choice, **Journal of the Royal Statistical Society, Series B**, 76(5), 833-859
- [P35] Lionel Cuccala and Jean-Michel Marin (2013) Bayesian inference on a mixture model with spatial dependence, **Journal of Computational and Graphical Statistics**, 22(3), 584-597
- [P34] Yves Auffray, Pierre Barbillon and Jean-Michel Marin (2012) Maximin design on non hypercube domain and kernel interpolation, **Statistics and Computing**, 22(3), 703-712
- [P33] Emilie Besnard, Amélie Babled, Laure Lapasset, Ollivier Milharet, Hugues Parrinello, Christelle Dantec, Jean-Michel Marin and Jean-Marc Lemaytre (2012) Unraveling cell type-specific and re-programmable human replication origin signatures associated with G-quadruplex consensus motifs, **Nature Structural & Molecular Biology**, July 1
- [P32] Gilles Celeux, Mohammed El Anbari, Jean-Michel Marin and Christian P. Robert (2012) Regularization in regression: comparing Bayesian and frequentist methods in a poorly informative situation, **Bayesian Analysis**, 7(2), 477-502
- [P31] Jean-Marie Cornuet, Jean-Michel Marin, Antonietta Mira and Christian P. Robert (2012) Adaptive Multiple Importance Sampling, **Scandinavian Journal of Statistics**, 39(4), 798-812
- [P30] Sophie Donnet and Jean-Michel Marin (2012) An empirical Bayes procedure for the selection of Gaussian graphical models, **Statistics and Computing**, 22(5), 1113-1123

- [P29] Arnaud Estoup, Eric Lombaert, Jean-Michel Marin, Thomas Guillemaud, Pierre Pudlo, Christian P. Robert et Jean-Marie Cornuet (2012) Estimation of demo-genetic model probabilities with Approximate Bayesian Computation using linear discriminant analysis on summary statistics, **Molecular Ecology Resources**, 12(5), 846-855
- [P28] Jean-Michel Marin, Pierre Pudlo, Christian P. Robert and Robin Ryder (2012) Approximate Bayesian Computation methods, **Statistics and Computing**, 22(6), 1167-1180
- [P27] Yves Auffray, Pierre Barbillon and Jean-Michel Marin (2011) Modèles réduits à partir d'expérience numériques, **Journal de Société Française de Statistique**, 152(1), 89-102
- [P26] Christian Robert, Jean-Marie Cornuet, Jean-Michel Marin and Natesh Pillai (2011) Lack of confidence in approximate Bayesian computation model choice, **Proceedings of the National Academy of Science**, 108(37), 15112-15117
- [P25] Alessandra Iacobucci, Jean-Michel Marin and Christian P. Robert (2010) On variance stabilisation in Population Monte Carlo by double Rao-Blackwellisation, **Computational Statistics and Data Analysis**, 54, 698-710
- [P24] Elyes Jouini, Jean-Michel Marin and Clotilde Napp (2010) Discounting and Divergence of Opinion, **Journal of Economic Theory**, 145(2), 830-859
- [P23] Jean-Michel Marin and Christian Robert (2010) On resolving the Savage-Dickey paradox, **Electronic Journal of Statistics**, 4, 643-654
- [P22] Mark Beaumont, Jean-Marie Cornuet, Jean-Michel Marin and Christian P. Robert (2009) Adaptive approximate Bayesian computation, **Biometrika**, 96(4), 983-990
- [P21] Roberto Casarin and Jean-Michel Marin (2009) Online data processing: Comparison of Bayesian regularized particle filters, **Electronic Journal of Statistics**, 3, 239-258
- [P20] Lionel Cucala, Jean-Michel Marin, Christian P. Robert and D.M. Titterton (2009) A Bayesian re-assessment of nearest-neighbour classification, **Journal of the American Statistical Association, Theory and Methods**, March 1, 104(485), 263-273
- [P19] Aude Grelaud, Christian P. Robert, Jean-Michel Marin, François Rodolphe and Jean-François Taly (2009) ABC likelihood-free methods for model choice in Gibbs random fields, **Bayesian Analysis**, 4(2), 317-336
- [P18] Aude Grelaud, Christian P. Robert and Jean-Michel Marin (2009) ABC methods for model choice in Gibbs random fields, **Compte Rendus Académie des Sciences - Paris, Ser. I**, 347, 205-210
- [P17] Selima Ben Mansour, Elyes Jouini, Jean-Michel Marin, Clotilde Napp and Christian P. Robert (2008) Are risk agents more optimistic? A Bayesian estimation approach, **Journal of Applied Econometrics**, 23, 843-860
- [P16] Olivier Cappé, Randal Douc, Arnaud Gullin, Jean-Michel Marin and Christian P. Robert (2008) Adaptive Importance Sampling in General Mixture Classes, **Statistics and Computing**, 18, 447-459
- [P15] Jean-Marie Cornuet, Filipe Santos, Mark Beaumont, Christian P. Robert, Jean-Michel Marin, David Balding, Thomas Guillemaud and Arnaud Estoup (2008) Inferring population history with DIY ABC: a user-friendly approach Approximate Bayesian Computation, **Bioinformatics**, 24(23), 2713-2719
- [P14] Jean-Michel Marin and Christian P. Robert (2008) Approximating the marginal likelihood in mixture models, **Indian Bayesian Society News Letter**, V, 1, 2-7
- [P13] Christian P. Robert and Jean-Michel Marin (2008) On some difficulties with a posterior probability approximation technique, **Bayesian Analysis**, 3, 2, 427-442

- [P12] Guido Consonni and Jean-Michel Marin (2007) Mean field variational Bayesian inference for latent variable models, **Computational Statistics and Data Analysis**, 52, 2, 790-798
- [P11] Randal Douc, Arnaud Guillin, Jean-Michel Marin and Christian P. Robert (2007) Convergence of adaptive mixtures of importance sampling schemes, **Annals of Statistics**, 35, 1, 420-448
- [P10] Randal Douc, Arnaud Guillin, Jean-Michel Marin and Christian P. Robert (2007) Minimum variance importance sampling via Population Monte Carlo, **ESAIM: Probability and Statistics**, 11, 427-447
- [P9] Pierre Druilhet and Jean-Michel Marin (2007) Invariant HPD and MAP based on Jeffreys measure, **Bayesian Analysis**, 2, 4, 681-692
- [P8] Wilfrid S. Kendall, Jean-Michel Marin and Christian P. Robert (2007) Confidence bands for Brownian motion and applications to Monte Carlo simulations, **Statistics and Computing**, 17, 1, 1-10
- [P7] Jean-Michel Marin (2007) Estimation of variance components for a linear Toeplitz model, **Communications in Statistics: Theory and Methods**, 36, 12, 2273-2288
- [P6] Gilles Celeux, Jean-Michel Marin and Christian P. Robert (2006) Iterated importance sampling in missing data problems, **Computational Statistics and Data Analysis**, 50, 12, 3386-3404
- [P5] Gilles Celeux, Jean-Michel Marin and Christian P. Robert (2006) Sélection bayésienne de variables en régression linéaire, **Journal de la Société Française de Statistique**, 147, 1, 59-79
- [P4] Arnaud Guillin, Jean-Michel Marin and Christian P. Robert (2005) Estimation bayésienne approximative par échantillonnage préférentiel, **Revue de Statistique Appliquée**, LIII, 1, 79-95
- [P3] Olivier Cappé, Arnaud Guillin, Jean-Michel Marin and Christian P. Robert (2004) Population Monte Carlo, **Journal of Computational and Graphical Statistics**, 13, 4, 907-929
- [P2] Jean-Michel Marin and Thierry Dhorne (2003) Optimal quadratic unbiased estimation for models with linear Toeplitz covariance structure, **Statistics**, 37, 2, 85-99
- [P1] Jean-Michel Marin and Thierry Dhorne (2002) Linear Toeplitz covariance structure models with optimal estimators of variance components, **Linear Algebra and Its Applications**, 354, 1-3, 195-212

## Book chapters (7)

- [C7] Arnaud Estoup, Paul Verdu, Jean-Michel Marin, Christian Robert, Alexandre Dehne-Garcia, Jean-Marie Cornuet and Pierre Pudlo (2017) Application of approximate Bayesian computation to infer the genetic history of Pygmy hunter-gatherers populations from Western Central Africa In S. Sisson, Y. Fan and M. Beaumont (eds) **Handbook of Approximate Bayesian Computation**, Chapman and Hall/CRC
- [C6] Jean-Michel Marin, Pierre Pudlo, Arnaud Estoup and Christian P. Robert (2017) Likelihood-free model choice, In S. Sisson, Y. Fan and M. Beaumont (eds) **Handbook of Approximate Bayesian Computation**, Chapman and Hall/CRC
- [C5] Christian P. Robert, Jean-Michel Marin and Judith Rousseau (2011) Bayesian Inference and Computation, In M. Stumpf, D. Balding and M. Girolami (eds) **Handbook of Statistical Systems Biology**, pages 39-65, John Wiley & Sons, Ltd, Chichester, UK
- [C4] Jean-Michel Marin and Christian P. Robert (2010) Importance sampling methods for Bayesian discrimination between embedded models, In M.-H. Chen, D. Dey, P. Mueller, D. Sun and K. Ye (eds) **Frontiers of Statistical Decision Making and Bayesian Analysis**, pages 513-527, Springer-Verlag, New York

- [C3] Christian P. Robert and Jean-Michel Marin (2010) On computational tools for Bayesian analysis, In K. Böcker (ed) **Rethinking Risk Measurement and Reporting, Volume I, Uncertainty, Bayesian Analysis and Expert Judgement**, chapter 2, Risk Books, London
- [C2] Kate Lee, Jean-Michel Marin, Kerrie Mengersen and Christian P. Robert (2009) Bayesian inference on mixtures of distributions, In N. Sastry, T. Rao, M. Delampady and B. Rajeev (eds) **Perspectives in Mathematical Sciences I, Probability and Statistics**, 165-202, World Scientific
- [C1] Jean-Michel Marin, Kerrie Mengersen and Christian P. Robert (2005) Bayesian modelling and inference on mixtures of distributions, In D. Dipak and C.R. Rao (eds) **Handbook of Statistics**, 25, 16, 459-507
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## Proceedings (2)

- [P2] Jean-Michel Marin, Pierre Pudlo and Mohammed Sedki (2012) Optimal parallelization of a sequential approximate Bayesian computation algorithm, **Proceedings of the Winter Simulation Conference 2012**, number 29, Berlin
- [P1] Jean-Patrick Baudry, Gilles Celeux and Jean-Michel Marin (2008) Selecting models focussing on the modeller's purpose, **COMPSTAT 2008: Proceedings in Computational Statistics** (P. Brito, Ed.), Physica-Verlag, Heidelberg, 337-348
- 

## Discussions (5)

- [D5] Jean-Michel Marin and Christian Robert (2012) Discussion on a paper of P. Fearnhead and D. Prangle: Constructing summary statistics for approximate Bayesian computation: semi-automatic approximate Bayesian computation, **Journal of the Royal Statistical Society Series B**, 74, 3, 463-464
- [D4] Jean-Michel Marin and Christian Robert (2011) Discussion on a paper of M. Girolami and B. Calderhead: Riemann manifold Langevin and Hamiltonian Monte Carlo methods, **Journal of the Royal Statistical Society Series B**, 73, 2, 189-190
- [D3] Alexandra Iacobucci, Jean-Michel Marin, Christian Robert and Kerrie Mengersen (2011) Discussion on a paper of H. Lopes, C. Carvalho, M. Johannes and N. Polson: Particle Learning for Sequential Bayesian Computation, **Bayesian Statistics 9**, Oxford University Press, 344-348
- [D2] Jean-Michel Marin, Roberto Casarin and Christian P. Robert (2009) Discussion on a paper of H. Rue, S. Martino and N. Chopin: Approximate Bayesian inference for latent Gaussian models by using integrated nested Laplace approximations, **Journal of the Royal Statistical Society Series B**, 71, 2, 360-362
- [D1] Jean-Michel Marin and Christian P. Robert (2002) Discussion on a paper of S.L. Lauritzen and T.S. Richardson: Chain graph models and their causal interpretation, **Journal of the Royal Statistical Society Series B**, 64, 3, 356
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## Vulgarizations (3)

- [V3] Jean-Michel Marin and Christian P. Robert (2009) Statistique bayésienne : les bases, **Les techniques de l'ingénieur**, AF605

- [V2] Romayn François and Jean-Michel Marin (2007) Initiation à R, **La revue Modulad**, 37, 83-101
- [V1] Jean-Michel Marin and Fabrice Rossi (2004) Découvrez les réseaux bayésiens, **GNU/Linux Magazine France**, 60, 56-65
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## Invited talks

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### International meetings (25)

- [M25] Bayesian inference for mixture models in large dimension, what to expect and to do, **Working Group on Model-Based Clustering**, Paris (july 2016)
- [M24] Approximate Bayesian Computation using Random Forests, **31st International Workshop on Statistical Modelling**, Rennes (july 2016)
- [M23] ABC random forests for Bayesian parameter inference, **ISBA 2016 World Meeting**, Sardaigne (june 2016)
- [M22] ABC random forests for parameter inference, **ABCruise**, Helsinki (may 2016)
- [M21] Hidden Gibbs random fields model selection using Block Likelihood Information Criterion **CRiSM Workshop on Estimating Constants**, Warwick (may 2016)
- [M20] Approximate Bayesian Computation for inference on population history using molecular markers, **Eleventh International Meeting on Computational Intelligence Methods for Bioinformatics and Biostatistics, CIBB 2014**, Cambridge (june 2014)
- [M19] ABC methods for Bayesian model choice, **Workshop Monte Carlo Inference for Complex Statistical Models**, Isaac Newton Institute for Mathematical Science, Cambridge (april 2014)
- [M18] Approximate Bayesian Computation inferences about population history using large molecular datasets, **MCM'Ski 2014**, Chamonix (january 2014)
- [M17] Relevant statistics for Bayesian model choice, **ERCIM 2013**, Londres (december 2013)
- [M16] Optimal parallelization of a sequential approximate Bayesian computation algorithm, **Winter Simulation Conference 2012**, Berlin (december 2012)
- [M15] Approximate Bayesian computation methods for model choice application to latent Gibbs random fields, **ERCIM 2012**, Oviedo (december 2012)
- [M14] Estimation of demo-genetic model probabilities with Approximate Bayesian Computation using linear discriminant analysis on summary statistics, **ISBA 2012 World Meeting**, Kyoto (june 2012)
- [M13] Bayesian inference on a mixture model with spatial dependence, **Workshop on Advances in MCMC, ICMS**, Edinburgh (april 2012)
- [M12] ABC methods for Bayesian model choice, **III COBAL & XXXVIII JNE**, Pucón (october 2011)
- [M11] Recent advances in ABC (Approximate Bayesian Computation), **Workshop on Recent advances in Bayesian Computation**, Singapour (september 2010)
- [M10] Bayesian discrimination between embedded models, **COMPSTAT 2010 Tutorial**, Paris (august 2010)

- [M9] Recent Advances in ABC (Approximate Bayesian Computation) methodology, **SIS 2010 Meeting**, Padoue (june 2010)
- [M8] Bayesian discrimination between embedded models, **Workshop on Challenging problems in Statistical Learning**, Paris (january 2010)
- [M7] ABC methods for model choice in Gibbs random fields, **ABC in Paris**, Paris (june 2009)
- [M6] Adaptive Importance Sampling in General Mixture Classes, **Adap'Ski Meeting**, Bormio (january 2008)
- [M5] A Bayesian reassessment of nearest-neighbour classification, **Spring Bayes 2007**, Coolangata (september 2007)
- [M4] Adaptive multiple importance sampling, **Workshop on Bioinformatics, Genetics and Stochastic Computation: Bridging the Gap**, Banff (july 2007)
- [M3] Variable selection in Gaussian linear regression, **The sixth International Workshop on Objective Bayesian Analysis**, Université La Sapienza, Rome (june 2007)
- [M2] Population Monte Carlo, **ISBA 2004 World Meeting**, Vina del Mar (may 2004)
- [M1] Convergence of adaptative sampling schemes, **Adap'Ski Meeting**, Bormio (january 2004)

## National meetings (11)

- [C11] Hidden Markov Random Fields model selection, **Rencontres statistique au sommet de Rochebrune**, Megève (march 2016)
- [C10] Hidden Gibbs random fields model selection using Block Likelihood Information Criterion **Colloque Final ANR Calibration Statistique**, Nice (april 2016)
- [C9] Scaling-up evolutionary analyses using Approximate Bayesian Computation methods, **Horizon des Mathématiques**, IBM Paris (december 2015)
- [C8] ABC and choix de modèles Relevant statistics for Bayesian model choice **Rencontres statistique au sommet de Rochebrune**, Megève (march 2014)
- [C7] Recuit simulé pour la conception de plans d'expérience numériques exploratoires, **Journée Statistique and Optimisation**, Institut Henri Poincaré, Paris (january 2011)
- [C6] Importance sampling methods for Bayesian discrimination between embedded models, **Rencontres Sherbrooke - Montpellier** (september 2010)
- [C5] Approximative Bayesian Computation Methods Faits and Méfaits d'ABC **Rencontres statistique au sommet de Rochebrune**, Megève (march 2010)
- [C4] Choix bayésien de modèles, **Journées MAS de la SMAI**, Rennes (august 2008)
- [C3] Selection of Gaussian graphical models, **Journées de Statistique du Sud**, Toulouse (june 2008)
- [C2] k-nearest-neighbour classification revisited, **Journées MAS de la SMAI**, Lille (september 2006)
- [C1] Bayesian Modeling and Inference on Mixtures of Distributions, **Journées modèles à données manquantes**, Paris (january 2005)