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(Updated cv always available at https://portamana.org/portamana_CV.pdf)

Synopsis

My experience and interests include Bayesian probability theory & statistics, data science and machine learning, continuum thermomechanics & fluid dynamics, general relativity, quantum theory, statistical physics, computational neuroscience, formal logic. I also have a passion for philosophy and history of science. In each of the mentioned subjects I have published original research or given popularizing seminars and lectures (see below).

My teaching and supervising experience ranges from ground-school children to PhD students, in academic institutions and as private tutor.

In research and in teaching I believe in interdisciplinarity and broadness: the diverse fields in physics, mathematics, and all sciences are just one, as one is the sky above us.

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Research and education

2022-04 – 2026-09: **Associate professor**,
HVL Western Norway University of Applied Sciences, Norway.
Teaching and research in physics and data science & AI prototyping; supervision of MSc and PhD students.

2020-11 – 2022-04: **Researcher**,
Mohn Medical Imaging and Visualization Center, Norway.
Bayesian machine learning applied to drug discovery and medical diagnostics, with emphasis on uncertainty quantification, reliability, and explainability. Subsidiary research on general relativity, thermomechanics, and geometry.

2018-05 – 2020-10: **Researcher**,
Kavli Institute for Systems Neuroscience, Norway.
Bayesian probability theory applied to: studies of collective neuronal activity, inference of brain diseases from fMRI data, genetics & psychology. Subsidiary research on general relativity, thermomechanics, and geometry.

2017-03 – 2018-04: **Independent researcher**,
Joint research with Forschungszentrum Jülich (Germany) and Cagliari University (Italy).
Bayesian inference of brain diseases from fMRI data; foundations of maximum-entropy methods. Development of ocean models with spin; improvement of neuronal simulator algorithms; foundations of continuum mechanics within general relativity.

2014-11 – 2017-03: **Researcher**,
Institute of Neuroscience and Medicine 6, Forschungszentrum Jülich, Germany.
Bayesian and maximum-entropy methods for detection of behaviour-related patterns in neural activity; relations between finer & coarser theories of brain activity; sampling theory for neuronal recordings.

2011-11 – 2014-01: **Researcher**,
Climate and Ocean Physics group, University of Oxford, UK.
Stochastic & deterministic theories for geophysical fluid dynamics and their numeric implementation; relations between finer & coarser dynamical theories; maximum-entropy and autoregressive models.

2008-10 – 2011-10: **Post-doctoral fellow**,
Quantum Foundations group, Perimeter Institute for Theoretical Physics, Canada.
Foundations of quantum theory and theory of hybrid statistical models; description of quantum phenomena via stochastic continuum mechanics; non-equilibrium statistical mechanics; continuum theories in general relativity.

2007-08 – 2008-09: **Post-doctoral researcher**,
Non-Linear Physics research group, Umeå University, Sweden.
Quantum kinetic theory for plasmas with spin; stochastic continuum thermomechanics; non-equilibrium statistical mechanics.

2008-08: **PhD**, thesis on *Studies in plausibility theory, with applications to physics* (https://portamana.org/).

2002-11 – 2007-06: **PhD studies**,
Quantum Electronics and Quantum Optics group, KTH Royal Inst. of Technology, Stockholm.
Quantum communication & quantum optics; beam- and fibre-based interferometry for time-bin entanglement; state estimation and tomography techniques; Bayesian statistical models for quantum and hybrid theories.

2002-09 – 2002-10: **Technician**,
Quantum Electronics and Optics group, KTH Royal Inst. of Technology, Stockholm.
Quantum communication; Quantum optics; beam- and fibre-based interferometry for time-bin entanglement.

2001-01 – 2002-08: **Graduate studies**,
Department of Theoretical Physics, KTH Royal Inst. of Technology, Stockholm.
General relativity; Quantum communication theory; non-linear differential equations.

2000-04: **Italian *Laurea*** in theoretical physics,
Cagliari University, awarded with maximum grades 'cum laude'. Thesis on *Asymptotic symmetries of anti-de Sitter space in two and three dimensions* (https://portamana.org/).
Dilatonic general relativity and its Hamiltonian formulation.

Pedagogical experience

Post-secondary and higher-level education

2022 – present: **Lecturer**, HVL Western Norway University of Applied Sciences.
Courses in undergraduate physics and mathematics; MSc course in data science and probability theory (MAT110, MAT108, ING175, ING174, ING164, ING162, ADA511).

2022 – present: **Supervisor for MPhys theses**, HVL Western Norway University of Applied Sciences.

2024 – present: **PhD co-supervisor**, HVL Western Norway University of Applied Sciences.

2023: **MSc course designer**, HVL Western Norway University of Applied Sciences.
Data Science and AI prototyping: `https://pglpm.github.io/ADA511/`.

2021 – 2024: **Guest lecturer**, NTNU Norwegian University of Science and Technology and Kavli Institute, Trondheim, Norway.
Lectures *The fallacies of p-values* and *Bayesian hypothesis testing* of the course *Concepts in Data Analysis* (NEVR8011) for PhD students and post-docs.

2021: **Lecturer**, HVL Western Norway University of Applied Sciences.
Bachelor course *Mathematics for computing* (MAT108).

2020: **Supervisor for MPhys thesis**, Cagliari University.
Thesis on *Dimensional analysis and scale invariance in general relativity*. The student was awarded maximum grades with distinction.

2019: **Lecturer**, Faculty of Medicine and Health Sciences, Trondheim, Norway.
Lectures *Introduction to probability* and *Probability and neural data* of the course *Concepts in Data Analysis* for PhD students and post-docs.

2018 – 2020: **Assistant PhD supervisor and midway evaluator**, Faculty of Medicine and Health Sciences and Kavli Institute for Systems Neuroscience, Trondheim, Norway.

2014 – 2017: **Co-supervisor** for several PhD students, Forschungszentrum Jülich, Germany.
Projects on maximum-entropy methods, Bayesian models and inference in neuroscience, state-space analysis of neuronal models.

2013: **Assistant supervisor for MPhys thesis**, University of Oxford.

2011 – 2012: **Full supervisor for BSc thesis**, Perimeter Institute for Theoretical Physics, Canada; KTH Royal Inst. of Technology, Stockholm; University of Oxford.
Thesis on *Obtaining Entropy via Coarsening: Microscopic Restrictions on Continuum-mechanical constitutive Equations*. The student Veronica Wallängen was awarded maximum grades with distinction.

2010: **Supervisor for BA project**, Perimeter Institute for Theoretical Physics, Canada, and Franklin W. Olin College of Engineering, MA, USA.
Project on *The relationships between plausibility theory and logic*.

2004 – 2006: **Lecturer**, Department of Microelectronics and Applied Physics, KTH Royal Inst. of Technology, Stockholm.
Exercise module of the bachelor course *Electromagnetism and waves* (20–30 students); preparation and graduation of written examinations.

2000: **Course tutor**, Department of Biology, Cagliari University.
Physics Laboratory course.

1996 – 1997: **Undergraduate tutor** for junior physics students, Department of Physics, Cagliari University.

1995 – 1996: **Undergraduate teacher**, Department of Physics, Cagliari University.
Introductory lectures in mathematics and physics for first-year undergraduate students (70–150 students).

Secondary education

2009 – 2011: **Summer-school teacher**, International Summer School for Young Physicists, Perimeter Institute for Theoretical Physics, Canada.
Short courses on *Probability theory as extended logic: elements and fundamental questions*; *Feynman-diagram techniques in classical physics: quantum field theory without 'particles'*; and *Pictorial introduction to even and odd vectors and covectors*.

Other pedagogical activity

2016 – present: **Online pedagogical help** in StackExchange websites
Physics: https://physics.stackexchange.com/users/132418 ,
Statistics & probability: https://stats.stackexchange.com/users/166514 ,
Mathematics: https://math.stackexchange.com/users/455507 ,
Others: https://stackexchange.com/users/7103840 .

2009 – 2011: **Pedagogical papers**, Perimeter Institute for Theoretical Physics, Canada.
On probability theory and differential geometry.

2003 – 2004: **Pedagogical papers and informal lectures**, KTH Royal Inst. of Technology, Stockholm.
On probability theory, differential geometry, thermomechanics.

2015: Attestation from course **Good Scientific Practice**, University of Düsseldorf.

2006: Attestation from course **Basic communication and teaching**, KTH Royal Inst. of Technology, Stockholm.

1990 – 2000: **Private tutor** in physics, mathematics, Latin; Italy.
Pupils varying from ground-school children to graduating students.

Authored lecture notes

The Seven Wonders of the World: Lecture notes on 21st-century physics (still a preliminary draft). Notes for an introductory BSc physics course that gives students a broader understanding of modern physics, and at the same time prepares them for an easier transition into specialized fields like continuum thermomechanics and fluid dynamics, relativity theory, nuclear physics, numerical-simulation methods.
https://pglpm.github.io/7wonders

Foundations of data science and AI prototyping BSc and MSc course that explains the fundamentals of Bayesian nonparametric population inference and Decision Theory as the foundations of Artificial Intelligence, Large Language Models, and data science.
https://pglpm.github.io/ADA511

Authored software

Prova: Nonparametric Probabilistic-Statistical Variate Analysis with Automated Markov-Chain , R package. Functions for calculating posterior joint and conditional probabilities, probability distributions of population frequencies, and information-theoretic measures, by means of Bayesian nonparametric methods. Markov-chain Monte Carlo calculations are automatically handled and do not require user supervision.
https://cran.r-project.org/package=prova, https://pglpm.github.io/prova

Pinference: probability inference for propositional logic R package for calculating lower and upper bounds of the probability for a propositional-logic expression, given equality and inequality constraints on the probabilities for other expressions. Truth-valuation is included as a special case. Applications range from decision-making and probabilistic reasoning, to pedagogical use in courses on probability and logic.
https://cran.r-project.org/package=Pinference, https://pglpm.github.io/Pinference/.

Memberships & associations

American Association of Physics Teachers (https://aapt.org/) 2024 – present.

International Society for Bayesian Analysis (https://bayesian.org) 2023 – present.

Friends of the *Stanford Encyclopedia of Philosophy* Society (https://plato.stanford.edu) 2019 – present.

TEX Users Group (https://tug.org) 2024 – present.

Electronic Frontier Foundation (https://www.eff.org) 2016 – 2024.

Society for Industrial and Applied Mathematics (https://siam.org) 2023.

Institute of Mathematical Statistics 2021 – 2022.

Society for Natural Philosophy 2004 – 2018.

Computational skills & experience

Very proficient with **R** (inference, data analysis, Monte Carlo methods), **Mathematica** (integration, solution of differential equations, data analysis, 3D & 4D plotting, symbolic manipulation, neural-network dynamics), **Matlab** (big data analysis, plotting), **Maple** (3D & 4D plotting), **Python** (data analysis, plotting, stochastic dynamics), parallel programming (**MPI**, **PBS**, and so on). Fairly proficient with **Fortran** (solution of partial differential equations, finite-difference simulations), **FEniCS/Dolfin** (solution of partial differential equations, finite-elements simulations), **NEST** (neural-network dynamics), **LabView** (interferometric data recording and analysis). My **C** variants and **Lisp** are a bit rusty but functioning.
Everyday familiarity with **LaTeX** and version-control systems like **Git** and **SVN**.

Coding of time- & event-driven spike-based neuron models (NEST, C++).

Coding and analysis of geophysical-fluid-dynamical models with several timestepping schemes and stochastic components, in Fortran (finite differences) with parallel computing (MPI), and in FEniCS/Dolfin (finite elements).

Laboratory experience

Experience in a quantum-optics laboratory and knowledge of its standard maintenance routines and safety measures. Use and care of equipment like lasers, optical elements, oscilloscopes, interferometers, modulators, etc. I have experience with the construction and set-up of fibre- and beam-based interferometers for detection of time-bin entanglement, including construction of parts of the metal frame, beam-fibre coupling maximization and stability, beam alignment and collimation, power monitoring and stabilization, placement of a thermal-stabilization and -monitoring system, coupling and programming (LabView) of various measuring and monitoring hardware and software.

Grants

Kempe foundations, Örnsköldsvik, Sweden: for post-doctoral research in non-linear physics (2007).

Foundation *Blanceflor Boncompagni-Ludovisi, née Bildt*, Stockholm: for graduate research in quantum communication theory (2002).

Foundation *Angelo Della Riccia*, Florence: for graduate research in theoretical physics (2001).

Journal refereeing

Referee for: Acta Physica Polonica A, American Journal of Physics, Annals of Physics, Foundations of Physics, International Journal of Theoretical Physics, Journal of Physical Chemistry, Journal of Physical Oceanography, Mathematics of Computation, New Journal of Physics, PLOS Computational Biology, Proceedings of the Royal Society A, Quantum Information & Computation, Studies in History and Philosophy of Modern Physics.

Languages & interests

Languages: **Italian**, mother tongue. **English**, fluent, spoken and written. **Swedish**, fluent, spoken and written. **Norwegian**, good reading and writing proficiency. **French** and **German**, fair reading and writing proficiency (mainly scientific writings). **Latin** and **Esperanto**, fair reading and writing proficiency. Beginner **Japanese**.

Other interests: Buster Keaton, Saitama, Swing dancing, martial arts, parkour, literature, music, languages, flying, art, philosophy, typography, odradek & Urusei Yatsura.

Referees

(For privacy reasons no contact details are shown on the public version of my CV. Please contact me personally for referee information.)

Former students

(For privacy reasons no contact details are shown on the public version of my CV. Please contact me personally for referee information.)

Publications & talks

Papers and conference proceedings

See also Orcid profile https://orcid.org/0000-0002-6070-0784

[44] **P.G.L. Porta Mana**: *What's special about 89% credibility intervals?*. Zenodo DOI:10.5281/zenodo.17072200 (2025).

[43] **P.G.L. Porta Mana**: *The Seven Wonders of the World: Lecture notes on 21st-century multiphysics*. https://pglpm.github.io/7wonders (2025).

[42] **P.G.L. Porta Mana**: *Data Science and AI prototyping*. https://pglpm.github.io/ADA511 (2025).

[41] **P.G.L. Porta Mana**, S. Mæland: *Teaching highlight: Foundations of data science and data-driven engineering*. ISBA Bull. https://bayesian.org/wp-content/uploads/2023/12/2312.pdf (2023).

[40] **P.G.L. Porta Mana**, I. Rye, A. Vik, M. Kociński, A. Lundervold, A. J. Lundervold, A. S. Lundervold: *Personalized prognosis & treatment using Bayesian nonparametric inference: An example study on conversion from Mild Cognitive Impairment to Alzheimer's Disease*. Zenodo DOI:10.5281/zenodo.17430468 (2023).

[39] K. Dyrland, A. S. Lundervold, **P.G.L. Porta Mana**: *A probability calibrator for machine-learning classifiers*. OSF DOI:10.31219/osf.io/vct9y_v2, arXiv DOI:10.48550/arXiv.2302.10578 (2022).

[38] K. Dyrland, A. S. Lundervold, **P.G.L. Porta Mana**: *Does the evaluation stand up to evaluation?: A first-principle approach to the evaluation of classifiers*. OSF DOI:10.31219/osf.io/jmqnu, arXiv DOI:10.48550/arXiv.2302.12006 (2022).

[37] S. Alam, B. Halandur, **P.G.L. Porta Mana**, D. Goplen, A. Lundervold, A. S. Lundervold: *Brain tumor segmentation from multiparametric MRI using a multi-encoder U-net architecture*. BrainLes DOI:10.1007/978-3-031-09002-8_26 (2022).

[36] **P.G.L. Porta Mana**: *Dimensional analysis in general relativity and in differential geometry*. Eur. J. Phys. DOI:10.1088/1361-6404/aba90b, updated

version in OSF DOI:10.31219/osf.io/jmqnu, arXiv DOI:10.48550/arXiv.2007.14217 (2021).

[35] **P.G.L. Porta Mana**: *The rule of conditional probability is valid in quantum theory [Comment on Gelman & Yao's 'Holes in Bayesian statistics']*. OSF DOI:10.31219/osf.io/bsnh7, arXiv DOI:10.48550/arXiv.2007.08160 (2020).

[34] **P.G.L. Porta Mana**: *A relation between log-likelihood and cross-validation log-scores*. OSF DOI:10.31219/osf.io/k8mj3, arXiv DOI:10.48550/arXiv.1908.08741 (2019).

[33] **P.G.L. Porta Mana**: *Sampling on the simplex*. OSF DOI:10.31219/osf.io/5zu6m (2019).

[32] **P.G.L. Porta Mana**, V. Rostami, E. Torre, Y. Roudi: *Maximum-entropy and representative samples of neuronal activity: a dilemma*. OSF DOI:10.31219/osf.io/uz29n, arXiv DOI:10.48550/arXiv.1805.09084, bioRxiv DOI:10.1101/329193 (2018).

[31] C. Bachmann, H. I. Jacobs, **P.G.L. Porta Mana**, K. Dillen, N. Richter, B. von Reutern, J. Dronse, O. A. Onur, K.-J. Langen, G. R. Fink, J. Kukolja, A. Morrison: *On the extraction and analysis of graphs from resting-state fMRI to support a correct and robust diagnostic tool for Alzheimer's disease*. Front. Neurosci. DOI:10.3389/fnins.2018.00528 (2018).

[30] **P.G.L. Porta Mana**, C. Bachmann, A. Morrison: *Inferring health conditions from fMRI-graph data*. OSF DOI:10.31219/osf.io/r2huz, arXiv DOI:10.48550/arXiv.1803.02626, bioRxiv DOI:10.1101/295113 (2018).

[29] **P.G.L. Porta Mana**: *Quantum theory within the probability calculus: a there-you-go theorem and partially exchangeable models*. OSF DOI:10.31219/osf.io/m38x6, arXiv DOI:10.48550/arXiv.1803.02263 (2018).

[28] **P.G.L. Porta Mana**: *Unlearning and Seyab's theorem: a dialogue about updating probability*. OSF DOI:10.31219/osf.io/wptc4, arXiv DOI:10.48550/arXiv.1802.00807 (2018).

[27] J. Krishnan, **P.G.L. Porta Mana**, M. Helias, M. Diesmann, E. A. Di Napoli: *Perfect detection of spikes in the linear sub-threshold dynamics of point neurons*. arXiv DOI:10.48550/arXiv.1706.05702, Front. Neuroinf. DOI:10.3389/fninf.2017.00075 (2017).

[26] V. Rostami, **P.G.L. Porta Mana**, M. Helias: *Pairwise maximum-entropy models and their Glauber dynamics: bimodality, bistability, non-ergodicity problems, and their elimination via inhibition*. arXiv DOI:10.48550/arXiv.1605.04740, PLoS Comp. Biol. DOI:10.1371/journal.pcbi.1005762 (2017).

[25] **P.G.L. Porta Mana**: *Geometry of maximum-entropy proofs: stationary points, convexity, Legendre transforms, exponential families*. OSF DOI:10.31219/osf.io/vsq5n, arXiv DOI:10.48550/arXiv.1707.00624 (2017).

[24] **P.G.L. Porta Mana**: *Maximum-entropy from the probability calculus: exchangeability, sufficiency*. OSF DOI:10.31219/osf.io/xdy72, arXiv DOI:10.48550/arXiv.1706.02561 (2017).

[23] L. Zanna, **P.G.L. Porta Mana**, J. Anstey, T. David, T. Bolton: *Scale-aware deterministic and stochastic parametrizations of eddy-mean flow interaction*. Ocean Modell. DOI:10.1016/j.ocemod.2017.01.004 (2017).

[22] **P.G.L. Porta Mana**, E. Torre, V. Rostami: *Inferences from a network to a subnetwork and vice versa under an assumption of symmetry*. bioRxiv DOI:10.1101/034199 (2015).

[21] **P.G.L. Porta Mana**, L. Zanna: *Toward a stochastic parametrization of ocean mesoscale eddies*. Ocean Modell. DOI:10.1016/j.ocemod.2014.04.002, https://portamana.org/linko.htm?w=portamanaea14.pdf (2014).

[20] **P.G.L. Porta Mana**, P. G. Lewis: *On two recent conjectures in convex geometry*. arXiv DOI:10.48550/arXiv.1105.4641 (2011).

[19] **P.G.L. Porta Mana**: *Conjectures and questions in convex geometry: of interest for quantum theory and other physical statistical theories*. OSF DOI:10.31219/osf.io/8anwr, arXiv DOI:10.48550/arXiv.1105.3238 (2011).

[18] **P.G.L. Porta Mana**: *Affine and convex spaces: blending the analytic and geometric viewpoints*. OSF DOI:10.31219/osf.io/jw9f6, arXiv DOI:10.48550/arXiv.1104.0032 (2011).

[17] **P.G.L. Porta Mana**: *In favour of the time variable in classical thermodynamics*. OSF DOI:10.31219/osf.io/cu4ad, arXiv DOI:10.48550/arXiv.1012.3091 (2010).

[16] **P.G.L. Porta Mana**: *On the relation between plausibility logic and the maximum-entropy principle: a numerical study*. arXiv DOI:10.48550/arXiv.0911.2197 (2009).

[15] G. Brodin, M. Marklund, J. Zamanian, Å. Ericsson, **P.G.L. Porta Mana**: *Effects of the g-factor in semi-classical kinetic plasma theory*. arXiv DOI:10.48550/arXiv.0809.2382, Phys. Rev. Lett. DOI:10.1103/PhysRevLett.101.245002 (2008).

[14] **P.G.L. Porta Mana**: *Studies in plausibility theory, with applications to physics*. Ph.D. thesis, https://portamana.org/linko.htm?w=mana070106-thesis.pdf (2007).

[13] **P.G.L. Porta Mana**, A. Månsson, G. Björk: *The Laplace-Jaynes approach to induction*. arXiv DOI:10.48550/arXiv.physics/0703126 (2007).

[12] A. Månsson, **P.G.L. Porta Mana**, G. Björk: *Numerical Bayesian state assignment for a quantum three-level system. II. Average-value data with a constant, a Gaussian-like, and a Slater prior*. arXiv DOI:10.48550/arXiv.quant-ph/0701087 (2007).

[11] A. Månsson, **P.G.L. Porta Mana**, G. Björk: *Numerical Bayesian state assignment for a three-level quantum system. I. Absolute-frequency data, constant and Gaussian-like priors*. arXiv DOI:10.48550/arXiv.quant-ph/0612105 (2006).

[10] **P.G.L. Porta Mana**, A. Månsson, G. Björk: *'Plausibilities of plausibilities': an approach through circumstances*. arXiv DOI:10.48550/arXiv.quant-ph/0607111 (2006).

[9] **P.G.L. Porta Mana**, A. Månsson, G. Björk: *On distinguishability, orthogonality, and violations of the second law: contradictory assumptions, contrasting pieces of knowledge*. arXiv DOI:10.48550/arXiv.quant-ph/0505229 (2005).

[8] **P.G.L. Porta Mana**: *Distinguishability of non-orthogonal density matrices does not imply violations of the second law*. arXiv DOI:10.48550/arXiv.quant-ph/0408193 (2004).

[7] G. Björk, **P.G.L. Porta Mana**: *Schrödinger-cat states: size classification based on evolution or dissipation*. Proc. SPIE DOI:10.1117/12.547048 (2004).

[6] **P.G.L. Porta Mana**: *Probabilistic properties of non-deterministic physical systems*. OSF DOI:10.31219/osf.io/nz8aw, arXiv DOI:10.48550/arXiv.quant-ph/0403084, in A. Yu. Khrennikov, ed.: 'Quantum Theory: Reconsideration of Foundations – 2' (Växjö University Press, 2004) (2004).

[5] G. Björk, **P.G.L. Porta Mana**: *A size criterion for macroscopic superposition states*. arXiv DOI:10.48550/arXiv.quant-ph/0310193, J. Opt. B DOI:10.1088/1464-4266/6/11/001 (2003).

[4] **P.G.L. Porta Mana**: *Why can states and measurement outcomes be represented as vectors?*. OSF DOI:10.31219/osf.io/q9frx, arXiv DOI:10.48550/arXiv.quant-ph/0305117 (2003).

[3] **P.G.L. Porta Mana**: *Consistency of the Shannon entropy in quantum experiments*. arXiv DOI:10.48550/arXiv.quant-ph/0302049, Phys. Rev. A DOI:10.1103/PhysRevA.69.062108, also in Virtual J. Quantum Information (2003).

[2] M. Cadoni, **P.G.L. Porta Mana**: *Hamiltonians for a general dilaton gravity theory on a spacetime with a non-orthogonal, timelike or spacelike outer boundary*. arXiv DOI:10.48550/arXiv.gr-qc/0011010, Class. Quantum Grav. DOI:10.1088/0264-9381/18/5/302 (2000).

[1] **P.G.L. Porta Mana**: *Asymptotic symmetries of anti-de Sitter space in two and three dimensions*. Cagliari University, https://portamana.org/linko.htm?w=thesis.pdf (2000).

In preparation

[9] **P.G.L. Porta Mana**: *Combining conditional exchangeability and Bayesian networks*. Draft available at https://github.com/pglpm/plausibility_calculus/raw/master/pglpm200514-cond_exchangeability.pdf.

[8] **P.G.L. Porta Mana**, C. Battistin, S. Gonzalo Cogno: *Reasoned inference of long-run mutual information*. Draft available at https://github.com/pglpm/mutualinforecast/raw/master/finite_sample_bullshit-v2.pdf.

[7] **P.G.L. Porta Mana**, D. Bragantini, I. C. Güzey: *Statistical relations between SNPs and insomnia: a simplified Bayesian study*. Draft available at https://github.com/pglpm/genobayes/raw/master/genobayes4.pdf.

[6] **P.G.L. Porta Mana**, V. Rostami, E. Torre: *Inferring the total activity of a large neuronal population from a small sample*. Draft available at https://github.com/pglpm/maxNt/raw/master/maxNt_v6.pdf.

[5] **P.G.L. Porta Mana**, A. Filipowicz: *Bayesian Plinko: Bayesian models to mimic human inferences*. Draft available at https://github.com/pglpm/plinkinetti/raw/master/plinkinetti180414.pdf.

[4] **P.G.L. Porta Mana**, *A geometric understanding of overtraining*. Very rough draft available at https://github.com/pglpm/neurobayes/raw/master/overtraining/luca180806-overtraining.pdf.

[3] **P.G.L. Porta Mana**, *A geometric understanding of exchangeability*. Draft available at https://github.com/pglpm/tutorial_exchangeability/raw/master/tutorial_exchangeability180623.pdf.

[2] **P.G.L. Porta Mana**: *'Eppur ruota': modelling the ocean as a fluid with spin*. Draft available at OSF DOI:10.31219/osf.io/8pwc7.

[1] **P.G.L. Porta Mana**: *The beauty of Graßmann spaces*. Draft available at https://github.com/pglpm/grassmannpeano/raw/master/grassmann_spaces_170418.pdf.

Seminars and posters

[36] with A. S. Lundervold and K. Dirland: *User-friendly software for Bayesian analysis of medical data*, poster at the 2021 Mohn Medical Imaging and Visualization Center Conference, Bergen, Norway (2021). Available at https://github.com/pglpm/bayes_regression/raw/main/mmiv_poster/lucakjetilalexander-poster_portrait.pdf.

[35] *Simultaneous and precise measurement of position and momentum in quantum theory*, invited talk at HVL Western Norway University of Applied Sciences, Norway (2021).

[34] *Cross-validation and early stopping: a Bayesian point of view?*, invited talk at the 11th Trondheim Symposium in Statistics, Trondheim, Norway (2020). Slides available at https://portamana.org/linko.htm?w=crossvalbayes.svg (warning: 10 MB file).

[33] with C. Bachmann, H. Jacobs, S. Buttler, K. Dillen, G. R. Fink, J. Kukolja, A. Morrison: *Graph properties of the functionally connected brain under the influence of Alzheimer's disease*, poster at the 12th Meeting of the German Neuroscience Society (NWG), Göttingen, Germany (2017).

[32] *Einstein 1905, Euler 1753: the importance of semantics in science*, Forschungszentrum Jülich, Germany (2017).

[31] with V. Rostami, M. Helias: *Bimodality and inhibition in pairwise maximum-entropy models for neuroscience*, poster at the 9th Bernstein Sparks Workshop, Göttingen, Germany (2016).

[30] *The relation between theories on different scales: insights from geophysical fluid dynamics*, invited talk at Cagliari University, Italy (2016).

[29] *In search of a coarser theory of the brain not suggested by finer theories: lessons from continuum thermomechanics*, Forschungszentrum Jülich, Germany (2015).

[28] *Inference of variable-rate Poisson model from spike-train data: hidden assumptions and approach via exchangeability*, Forschungszentrum Jülich, Germany (2015).

[27] *Probability relations between neuronal networks and subnetworks*, Forschungszentrum Jülich, Germany (2015).

[26] *Introduction to probability logic (Bayesian theory) and its use in neuroscience*, Forschungszentrum Jülich, Germany (2015).

[25] *Geophysical fluid dynamics and coarse-scale brain activity: similarity of problems! similarity of solutions?*, invited talk at the Forschungszentrum Jülich, Germany (2014).

[24] *And yet it rotates! (The disappearance of rotational momentum on large scales: modelling large-scale water as a fluid with intrinsic spin)*, University of Oxford, UK (2014).

[23] *Stochastic parametrization of mesoscale eddies: is water at large scales a liquid polymer?*, University of Oxford, UK (2013).

[22] with L. Zanna: *Developing a stochastic parameterization of mesoscale eddies*, poster at the European Geosciences Union General Assembly, Austria (2013) and the IUGG Conference on Mathematical geophysics, UK (2012).

[21] *A critique of the maximum-entropy principle by one of its supporters*, invited talk at the 31st International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering 'MaxEnt 2011', Waterloo, Canada (2011).

[20] *Vectors and affine forms, straight and twisted: with applications to electromagnetism and general relativity*, Perimeter Institute for Theoretical Physics, Canada (2011).

[19] *Parallels between truth logic and probability theory (a pseudo-historical, game-theoretic presentation)*, Perimeter Institute for Theoretical Physics, Canada (2010).

[18] *Metaphysical deductions and assumptions in quantum physics (or: there can't be only particles behind the wave function)*, invited talk, Perimeter Institute for Theoretical Physics, Canada (2008).

[17] *A historical review of the 'convex approach' to quantum theory, and an overview of the 'probability table' formalism*, invited talk at the workshop 'Operational probabilistic theories as foils to quantum theory', Department of Applied Mathematics and Theoretical Physics, Cambridge University (2007).

[16] *Plausibility theory as inductive logic*, Stockholm University (2006).

[15] *A review on non-completely-positive maps and evolution of non-isolated quantum systems*, KTH Royal Inst. of Technology, Stockholm (2006).

[14] *Gravitomagnetism, and inertia as a real force. (With an appendix on the effects of weightlessness on the human body)*, KTH Royal Inst. of Technology, Stockholm (2005).

[13] *Probability theory as an extension of formal logic*, KTH Royal Inst. of Technology, Stockholm (2005).

[12] with G. Björk: *Uncertainty, information, and entropy: comparison of two definitions*, invited talk at the 'Ninth International Conference on Squeezed States and Uncertainty Relations ICSSUR 2005', Besançon, France (2005). Slides available at https://portamana.org/linko.htm?w=icssur05pdf.

[11] *Non-orthogonality of statistical matrices and violations of the second law of thermodynamics*, KTH Royal Inst. of Technology, Stockholm (2004).

[10] *Probability tables: the convex approach to quantum theory*, invited talk at the conference 'Quantum Theory: Reconsideration of Foundations – 2', Växjö University (2004).

[9] *Notes on entropy assignments, statistical mechanics, and convex sets, for classical and quantum mechanics*, Stockholm University(2004).

[8] *A panoramic picture of modern rational thermodynamics and thermomechanics*, KTH Royal Inst. of Technology, Stockholm (2004).

[7] *In between classical and quantum systems: Visualising the convex properties of sets of states and measurements*, Stockholm University and KTH Royal Inst. of Technology, Stockholm (2003).

[6] *On experimental data tables, sets of states and measurement outcomes, distinguishability, and the boundary between classical and quantum systems*, KTH Royal Inst. of Technology, Stockholm (2003).

[5] *Maximum-entropy method in statistical mechanics and negative temperatures*, KTH Royal Inst. of Technology, Stockholm (2003).

[4] *Conceptual adequacy of the Shannon entropy in quantum measurements*, KTH Royal Inst. of Technology, Stockholm, and Cagliari University (2002).

[3] *Reproduction of quantum phenomena by a deck of cards*, KTH Royal Inst. of Technology, Stockholm, and Cagliari University (2002).

[2] *Tomography of quantum states*, KTH Royal Inst. of Technology, Stockholm, and Cagliari University (2001).

[1] *Runge-Kutta methods for nonlinear differential equations and Hopf algebras*, KTH Royal Inst. of Technology, Stockholm (2001).