

Some random readings

1 Some papers

- 983. <https://hdpa2019.sciencesconf.org/index.html>
- 982. G. Pisier. Introduction to Operator Space Theory, Cambridge University Press, Cambridge, 2003. MR2006539
- 981. A matrix Burkholder–Davis–Gundy inequality, ECP 2026
- 980. Non commutative Khintchine and Paley inequalities, 1991
- 979. Gilles Pisier. Subgaussian sequences in probability and Fourier analysis.
- 978. G. Pisier and Q. Xu, Non-commutative martingale inequalities, Comm. Math. Phys. 189 (1997), no. 3, 667–698. MR 1482934 (98m:46079)
- 977. Asymptotic Inference in a Stationary Quantum Time Series
- 976. Neural Networks: a Primer for Mathematicians, Boris Hanin, Princeton ORFE
- 975. Brittleness of Bayesian inference and new Selberg formulas
- 974. Approximation of Functions: Optimal Sampling and Complexity, Acta Numerica
- 973. On the kernel learning problem, Feng Ruan
- 972. Dynamical rigidity for weighted composition operators on holomorphic function spaces
- 971. Optimal approximation of infinite-dimensional holomorphic functions II: recovery from i.i.d. pointwise samples
- 970. High Dimensional Probability X, The Będlewo Volume
- 969. [Gilles Pisier. Subgaussian sequences in probability and Fourier analysis.](#) arXiv preprint arXiv:1607.01053, 2016.
- 968. Super-resolution from noisy data
- 967. Towards a mathematical theory of super-resolution
- 966. Fourier Analytic Bounds for Zolotarev Distances and Applications to Empirical Measures, Michel Ledoux
- 965. Introduction to Information-Based Complexity
- 964. Inverse learning in Hilbert scales
- 963. Mathematicians in the Age of AI, Jeremy Avigad
- 962. Short Proofs In Combinatorics And Number Theory
- 961. Charles Fefferman’s recent works on manifold learning

960. Approximating the permanent of a random matrix with polynomially small mean: zeros and universality, Frederic Koehler
959. [Sharp debiasing for smooth functional estimation in Banach spaces](#)
958. Samplet limits and multiwavelets
957. Tree-Adaptive Multiscale Kernel Lasso in Samplet Coordinates
956. The Grothendieck Constant is Strictly Larger than Davie–Reeds’ Bound
955. Randomstrasse101: Open Problems of 2025
954. Concentration of the bootstrap empirical process, with applications to statistical inference
953. Foundations of Polar Linear Algebra: A Structured Framework for Radial–Angular Operators
952. Shifted Composition IV: Toward Ballistic Acceleration for Log-Concave Sampling
951. On computing and the complexity of computing higher-order U -statistics, exactly, Lin Liu
950. Variational inference via radial transport
949. Consistency of MLE in partially observed diffusion models on a torus, AAP
948. A phase transition in sampling from Restricted Boltzmann Machines, AAP
947. Detection Is Harder Than Estimation in Certain Regimes: Inference for Moment and Cumulant Tensors
946. Rigidity of the structured singular value and applications
945. Three short tales on the parity operator
944. Law of Large Numbers for continuous N -particle ensembles at fixed temperature
943. Sharp Concentration Inequalities: Phase Transition and Mixing of Orlicz Tails with Variance
942. A proof of Fill’s spectral gap conjecture
941. Entropy for compact operators and results on entropy and specification
940. On Certain forms of Transitivity for Linear Operators
939. Quantum eigenvalue processing
938. Weak limit semigroup in operator theory and ergodic theory
937. Goal-Oriented Learning Of Stochastic Dynamical Systems Using Error Bounds On Path-Space Observables
936. Forward and inverse problems for measure flows in Bayes Hilbert spaces
935. Entropy and Minimax Risk of Hypoelliptic Pseudodifferential Operators
934. Minimax and Adaptive Covariance Matrix Estimation under Differential Privacy
933. Trustworthy Koopman operator learning: invariance diagnostics and error bounds
932. Random matrices and U -statistics
931. Sampling Through Iterated Approximation: Gradient-Free And Multi-Fidelity Bayesian Inference Via Transport
930. Reweighted information inequalities, Jonathan Niles-Weed

929. Empirical and Gaussian processes on Besov classes, Richard Nickl 2006
928. Nonparametric Inference and Smoothed Empirical Processes, Richard Nickl, March 2013 Spring School “Structural Inference”, Bad Belzig
927. Modern Koopman Theory for Dynamical Systems, SIAM Review 2022
926. A Note On Pisier’s Method In Interpolation Of Abstract Hardy Spaces
925. Bethe-Sommerfeld Conjecture And Absolutely Continuous Spectrum Of Multi-Dimensional Quasi-Periodic Schrödinger Operators, Annals of Mathematics, 2026
924. Permutation entropy: a natural complexity measure for time series, Christoph Bandt, Bernd Pompe, 2002
923. Measure Concentration And The Weak Pinsker Property, Tim Austin
922. Empirical risk minimization and complexity of dynamical models
921. Single Trajectory Nonparametric Learning of Nonlinear Dynamics
920. Lyapunov Exponents, Entropy And Mixing For Diperna-Lions Flows
919. Brenier isotonic regression
918. A Spectral-Grassmann Wasserstein Metric For Operator Representations Of Dynamical Systems, Karim Lounici
917. Maria Colombo -lectures: Flows of Irregular Vector Fields in Fluid Dynamics
916. Universality laws for random matrices via exchangeable counterparts, Joel A. Tropp
915. Multi-Scale Sparse Domination
914. My favorite problems, Michel Talagrand
913. [The Theory of Schrödinger Operators: What’s It All About? Barry Simon](#)
912. Comparison Theorems For The Extreme Eigenvalues Of A Random Symmetric Matrix, Joel A. Tropp
911. On the log-Sobolev constant of log-concave vectors, JFA 2026
910. Bayesian Linear Regression With Sparse Priors
909. Random matrix approximation of spectra of integral operators, Koltchinskii and Giné 2000
908. Ensemble samplers with affine invariance, Communications in Applied Mathematics and Computational Science 2010
907. Improved Diffusion Monte Carlo, CPAM
906. Uniform mean estimation via generic chaining, Advances in Mathematics 2026+
905. Sharp Bounds for Multiple Models in Matrix Completion
904. A Moment-Based Approach To The Injective Norm Of Random Tensors
903. A pedestrian introduction to fast multipole methods, Lexing Ying 2012, Science China Mathematics
902. Characterizations of second-order differential operators, see Hermann König and Vitali Milman’s book [“Operator Relations Characterizing Derivatives”](#), [“Operator Functional Equations in Analysis”](#)
901. What is . . . a paraproduct? The operator norm of paraproducts on Hardy spaces

900. Universal coding, intrinsic volumes, and metric complexity. *JEMS*, 2025
899. Gaussian Width of Convex Sets via Integral Decompositions, Projections, and the Distribution of Intrinsic Volumes, Nikita Zhivotovskiy
898. Spectral Gaps And Measure Decompositions, March T. Boedihardjo, Joe Kileel, And Vandy Tombs
897. A short tour of operator learning theory: Convergence rates, statistical limits, and open questions
896. The Theory of Schrodinger Operators: What's It All About?
895. An Empirical Bayes Perspective on Heteroskedastic Mean Estimation, Yanjun Han
894. Multi- And Infinite-Variate Integration And L2-Approximation On Hilbert Spaces With Gaussian Kernels, MoC 2026
893. Constructive Approximation of High-Dimensional Functions with Small Efficient Dimension with Applications in Uncertainty Quantification, Wendland 2026; On the Approximability and Curse of Dimensionality of Certain Classes of High-Dimensional Functions, Wendland 2024
892. A general approach to posterior contraction in nonparametric inverse problems, Bernoulli
891. Drift Estimation of Multiscale Diffusions Based on Filtered Data, FoCM 2021
890. Kernel Methods for the Construction of Certified Lyapunov Functions via Approximate Koopman Eigenfunctions
889. The Markov Chain Monte Carlo Revolution, Persi Diaconis
888. Efficient Online Learning in Interacting Particle Systems, Grigorios A. Pavliotis
887. A Data Driven Approach to Multiscale Approximation with Anisotropically Scaled Radial Basis Functions, Wendland
886. [Nonlinear model reduction for transport-dominated problems](#), *Acta Numerica*
885. 100 Open Problems, Ben Green
884. Effective sample size approximations as entropy measures
883. On the errors committed by sequences of estimator functionals
882. Quadratization of Autonomous Partial Differential Equations: Theory and Algorithms
881. Sampling from Constrained Gibbs Measures: with Applications to High-Dimensional Bayesian Inference
880. [Sum of Gaussian Vectors And Large Sets](#), Antoine Song
879. On The Subgaussian Comparison Theorem, RVH
878. Matrix Perturbation Theory In The Tangent Space Of Isospectral Matrices, YUJI NAKATSUKASA
877. Eigen, Singular, Cosine-Sine, And Autonne-Takagi Vectors Distributions Of Random Matrix Ensembles, Lim
876. Bounds On Oscillatory Integral Operators Based On Multilinear Estimates, Jean Bourgain and Larry Guth, GAFA
875. Optimal Error Bounds On The Exponential Integrator For Dispersive Equations With Highly Concentrated Potential
874. A Researcher's Guide to Empirical Risk Minimization, Lars van der Laan
873. [Lengthscale-informed sparse grids for kernel methods in high dimensions](#), *Numerische Mathematik 2026*

872. [The Fast Gauss Transform, Leslie Greengard and John Strain](#)
871. Quantum Hamming Metrics, MARC A. RIEFFEL
870. The quantum Wasserstein distance of order 1.
869. Quantum concentration inequalities
868. Quantum optimal transport with quantum channels
867. Weingarten calculus with virtual isometries
866. Concentration Bounds For Intrinsic Dimension Estimation Using Gaussian Kernels
865. The radius of statistical efficiency, FoCM 2026
864. Stochastic Localization with Non-Gaussian Tilts and Applications to Tensor Ising Models
863. Optimal transport on the lie group of roto-translations, SIAM Journal on Imaging Sciences
862. Theorems of Carathéodory, Helly, and Tverberg Without Dimension
861. Phasebook: a survey of selected open problems in phase retrieval
860. Local convergence of mean-field Langevin dynamics: from gradient flows to linearly monotone games
859. Hybrid operator learning of wave scattering maps in high-contrast media
858. Gibbs Measures from Deep Shaped Multilayer Perceptrons, PRL
857. Control Strategies for the McKean-Vlasov Equation
856. Blind denoising diffusion models and the blessings of dimensionality
855. Fast Computation of the Fractional Power of a Matrix
854. Universal Sequential Changepoint Detection of Quantum Observables via Classical Shadows
853. Deep Bootstrap
852. First Proof
851. Statistical-Computational Trade-offs in Learning Multi-Index Models via Harmonic Analysis
850. A Theory of Feature Learning in Kernel Models
849. Random geometric graphs with smooth kernels: sharp detection threshold and a spectral conjecture
848. A Bayesian Approach to Low-Discrepancy Subset Selection, Nathan Kirk
847. Denoising Diffusions with Optimal Transport: Localization, Curvature, and Multi-Scale Complexity
846. Intrinsic dimension concentration inequalities for self-adjoint operators
845. Toeplitz Based Spectral Methods For Data-Driven Dynamical Systems
844. [The Gaussian Conjugate Rogers–Shephard Inequality](#), Inequalities for the Gaussian measure of convex sets.
843. [A New Proof Of The Abstract Random Tensor Estimate By Deng, Nahmod, And Yue](#)
842. [Random Tensors](#), Propagation Of Randomness, And Nonlinear Dispersive Equation
841. Michel Talagrand and the Rigorous Theory of Mean Field Spin Glasses, Sourav Chatterjee, H. Holden, R. Piene (eds.): The Abel Prize 2023–2027, Springer.

840. On the Sample Complexity of Stabilizing Linear Dynamical Systems from Data, FoCM 2024
839. Variational Optimality Of Föllmer Processes In Generative Diffusions
838. Quantifying The Effect Of Graph Structure On Strong Feller Property Of SPDEs
837. Group representations in probability and statistics, Persi Diaconis
836. Fastest mixing Markov chain on a graph, SIAM Review 2004; Fast linear iterations for distributed averaging 2004
835. [Noisy Recovery From Random Linear Observations: Sharp Minimax Rates Under Elliptical Constraints, AoS 2024](#)
834. Online Bernstein–von Mises theorem, JMLR 2025
833. The strong convergence phenomenon, a survey paper by Ramon Van Handel
832. Sampling on Metric Graphs, Lexing
831. [A friendly proof of the Berry-Esseen theorem, Roman Vershynin](#)
830. Thinning to Improve Two-Sample Discrepancy, Random Structures & Algorithms
829. Preconditioning And Numerical Stability In Neural Network Training For Parametric PDEs
828. Semi-Parametric Bernstein–Von Mises Theorem In A Parabolic PDE Problem
827. Geometric Generalization Of Neural Operators From Kernel Integral Perspective
826. Large Language Models: A Mathematical Formulation
825. [Spectral Filtering for Learning Quantum Dynamics](#)
824. [An important paper: Relative perturbation bounds with applications to empirical covariance operators](#)
823. A variational approach to dimension-free self-normalized concentration
822. Wedge Sampling: Efficient Tensor Completion with Nearly-Linear Sample Complexity
821. [Matrix Concentration: Order versus Anti-order](#)
820. [A Note on the Sample Complexity of the Er-SpUD Algorithm by Spielman, Wang and Wright for Exact Recovery of Sparsely Used Dictionaries, Radoslaw Adamczak](#)
819. Data-driven Reduction of Transfer Operators for Particle Clustering Dynamics; Data-driven approximation of transfer operators for mean-field stochastic differential equations.
818. Smooth Multi-Trace Statistics Of Classical Ensembles: Large N Expansions, Cumulants, And Matrix Integrals
817. Functional Stochastic Localization
816. Discrete Green’s Functions, Journal of Combinatorial Theory, Series A 91, 191-214 (2000)
815. Expected hitting time estimates on finite graphs, Laurent Saloff-Coste
814. [Thompson Sampling: Precise Arm-Pull Dynamics And Adaptive Inference, Qiyang Han](#)
813. Spectral Gap of Metropolis Algorithms for Non-smooth Distributions under Isoperimetry, Shuigen Liu and Xin Tong
812. Monotone measure-transportation maps in Hilbert spaces, with statistical applications, Bernoulli 2026, Bodhisattva Sen etc

811. Operator $\ell^\infty \rightarrow \ell^\infty$ norm of products of random matrices with iid entries, EJP 2026, Jean-Christophe Mourrat
810. [Singular Learning Theory](#) for Factor Analysis, see the book "Sumio Watanabe, Algebraic geometry and statistical learning theory"
809. Posterior contraction rates for the Bayesian approach to linear ill-posed inverse problems, Stochastic processes and their applications
808. [SFO: Learning PDE Operators via Spectral Filtering](#)
807. Variational Tail Bounds for Norms of Random Vectors and Matrices, Sohail Bahmani
806. [Concentration Inequalities for Exchangeable Tensors and Matrix-valued Data](#), Chen Cheng and Rina Barber
805. Approximation by linear sampling operators in Banach spaces
804. On some information-theoretic aspects of non-linear statistical inverse problems
803. Numerical reconstruction of coefficients in elliptic equations using continuous data assimilation, JCP
802. Geometric Numerical Integration
801. [Discrete mechanics and variational integrators](#), Acta Numerica 2001
800. Concentration of the empirical measure in Wasserstein distance: bounds involving the covering dimension
799. [A discrete Benamou-Brenier formulation of Optimal Transport on graphs](#)
798. Low-Rank Approximation for Multiscale PDEs
797. Learning Dissipative Dynamics in Chaotic Systems
796. Karhunen–Loève approximation of random fields by generalized fast multipole methods, Schwab
795. Robust Mean Estimation under Quantization
794. Global polynomial-time estimation in statistical nonlinear inverse problems via generalized stability, by Sven Wang, which solves Darcy’s flow inverse problem in $o(N^2)$ time using wavelet-related estimators.
793. Continuous data assimilation: “Continuous Data Assimilation Using General Interpolant Observables”, “Continuous Data Assimilation with Stochastically Noisy Data”
792. [Covariance estimation using Markov chain Monte Carlo](#)
791. [What Functions Does XGBoost Learn?](#), Adityanand Guntuboyina, see Dohyeong Ki’s slides on his website, [related to Hardy–Krause variation \(HK\)](#)
790. Rigorous Implications of the Low-Degree Heuristic
789. Lift & Learn: Physics-informed machine learning for large-scale nonlinear dynamical systems
788. Data-driven Reduction of [Transfer Operators](#) for Particle Clustering Dynamics
787. [When are dynamical systems learned from time series data statistically accurate?](#) Nisha
786. The Refutability Gap: Challenges in Validating Reasoning by Large Language Models, Elchanan Mossel
785. The Theory of Online Control, Statistical Science, Elad Hazan, Karan Singh
784. Sampling on Metric Graphs, Lexing Ying
783. Disordered Dynamics in High Dimensions: Connections to Random Matrices and Machine Learning

782. [Lift & Learn: Physics-informed machine learning for large-scale nonlinear dynamical systems](#)
781. Sharp spectral gap of adaptive Langevin dynamics
780. Sharp Large Deviation Estimates For Heavy-Tailed Extrema
779. Anti-concentration with respect to random permutations
778. Characterizing Finite-Dimensional Posterior Marginals in High-Dimensional GLMs via Leave-One-Out, Pragma Sur
777. Solving inverse problems using data-driven models, Acta Numerica 2019
776. Compositional Sparsity, Approximation Classes, and Parametric Transport Equations, Constructive Approximation 2025, by Wolfgang Dahmen
775. Stable Extrapolation Of Analytic Functions, FoCM 2019, Townsend and Demanet
774. Central Limit Theorems And Bootstrap In High Dimensions
773. Improved rates of bootstrap approximation for the operator norm: A coordinate-free approach
772. Streamlined solutions to multilevel sparse matrix problems
771. [On the Sample Complexity of the Linear Quadratic Regulator](#), FoCM 2020, Linear quadratic control of nonlinear systems with Koopman operator learning and the Nyström method, Active operator inference for learning low-dimensional dynamical-system models from noisy data
770. A Random Integration Algorithm for High-Dimensional Function Spaces, MoC 2025
769. [Average-Case Analysis of Numerical Problems](#)
768. Score-based sampling without diffusions: Guidance from a simple and modular scheme, Martin J. Wainwright
767. See Maximilian Siebel's papers
766. Marginal Likelihood Computation for Model Selection and Hypothesis Testing: An Extensive Review, SIAM Review 2023
765. [Dynamic sparsity on dynamic regression models](#)
764. Two Bernoulli papers:
- 1) Concentration inequalities for classical and smoothed empirical processes of independent and dependent random variables
 - 2) On adaptive confidence ellipsoids for sparse high-dimensional linear models
763. [Univariate-Guided Sparse Regression](#)
762. [Dynamic sparsity on dynamic regression models \(Bayesian framework\)](#)
761. Spectral norm of matrices with independent entries up to polyloglog
760. The Stochastic Six Vertex Model And Discrete Orthogonal Polynomial Ensembles, Promit Ghosal and Guilherme L. F. Silva, 159 pages
759. [Research Program: Theory of Learning in Dynamical Systems](#); Universal Learning of Nonlinear Dynamics; Learning linear dynamical systems via spectral filtering
758. Towards Sharp Minimax Risk Bounds for Operator Learning
757. Estimates For The Distances Between Solutions To Kolmogorov Equations With Diffusion Matrices Of Low Regularity, Vladimir I. Bogachev

756. Fractional and Integer Order Sobolev Spaces for Compact Metric Graphs, by David Bolin
755. Kernel Interpolation In Sobolev Spaces Of Hybrid Regularity, by Michael Griebel (Sparse grids) and Helmut Harbrecht; Optimized general sparse grid spaces for operator equations.
754. Sharp convergence rates for Spectral methods via the feature space decomposition method
753. Learning the score under shape constraints, Richard J. Samworth
752. Local sensitivity analysis for Bayesian inverse problems
751. An Optimal Weighted Least-Squares Method for Operator Learning
750. Gaussian Process Regression for Uncertainty Quantification: An Introductory Tutorial, Jinglai Li
749. Fast Randomized Iteration: Diffusion Monte Carlo through the Lens of Numerical Linear Algebra
748. Single Trajectory Nonparametric Learning of Nonlinear Dynamics
747. Markov properties of Gaussian random fields on compact metric graphs, Bernoulli, David Bolin
746. The Localization Method for High-Dimensional Inequalities, Vempala
745. Multi-index Monte Carlo: when sparsity meets sampling
744. Distributional Shrinkage II: Optimal Transport Denoisers with Higher-Order Scores, Tengyuan Liang
743. On the stochastic proof of the Blaschke-Santaló inequality, Joseph Lehec
742. Handbook of Numerical Analysis
741. On semi-separability and differentiation matrices
740. The Optimal Approximation Factor in Density Estimation, see open problems in the paper. Density estimation in linear time, COLT 2008
739. Gaussian multiplicative chaos and applications: A review
738. Quantum Realization Of The Finite Element Method, Peterseim (MoC), A following related paper by Jinchao Xu: A polynomial dimension-dependence analysis of Bramble–Pasciak–Xu preconditioners
737. Ideal Spatial Adaptation by Wavelet Shrinkage (Donoho, Johnstone, 1994)
736. Survey: Randomized Algorithms for Low-Rank Matrix and Tensor Decompositions
735. A survey of projection-based model reduction methods for parametric dynamical systems, SIAM Review
734. Book: The Classical Moment Problem and Some Related Questions in Analysis
733. Constructive Approximation under Carleman’s Condition, with Applications to Smoothed Analysis, Frederic Koehler
732. A Tutorial on the Method of Orthogonal Polynomials for Random Graphs via the Planted Clique Problem, Cheng Mao
731. Daniel Kressner’s work: Low-Rank Tree Tensor Network Operators For Long-Range Pairwise Interactions
730. Data-intrinsic approximation in metric spaces, Dölz
729. Asymptotic Inference in a Stationary Quantum Time Series, Michael Nussbaum
728. The Mean-Field Dynamics Of Transformers, Phillpe Rigollet, ICM 2026
727. Sequential Monte Carlo Methods & Particle Filters Resources, website by by Arnaud Doucet

726. Minimax Spectral Estimation Of Weighted Laplace Operators
725. Low-rank cross approximation of function-valued tensors for reduced-order modeling of parametric PDEs
724. A conjecture concerning optimality of the Karhunen-Loeve basis in nonlinear reconstruction. Its solution: Order Statistics Of Vectors With Dependent Coordinates, And The Karhunen-Loeve Basis
723. Maximum entropy models from phase harmonic covariances
722. Operator Learning At Machine Precision
721. Beyond Expectation: Concentration Inequalities for Randomized Iterative Methods
720. A Dynamics-Informed Gaussian Process Framework for 2D Stochastic Navier-Stokes via Quasi-Gaussianity, Owhadi
719. Some aspects of robustness in modern Markov Chain Monte Carlo
718. Extension and neural operator approximation of the electrical impedance tomography inverse map
717. Review article: The Ginzburg-Landau equations: Vortex states and numerical multiscale approximations
716. Optimal Transport Maps, Majorization, And Log-Subharmonic Measures
715. Propagation Of Chaos In Fisher Information
714. Quantum Framework for Wavelet Shrinkage, TAMU
713. Hierarchic Flows To Estimate And Sample High-Dimensional Probabilities, Stéphane Mallat
712. Talagrand's convolution conjecture up to loglog via perturbed reverse heat, Yuansi Chen
711. Time-uniform concentration bounds for iterative algorithms, UT-Austin
710. Variational Tail Bounds for Norms of Random Vectors and Matrices
709. Bayesian inference in high-dimensional models, review paper, Castillo
708. VECTOR-VALUED GAUSSIAN PROCESSES FOR APPROXIMATING DIVERGENCE- OR ROTATION-FREE VECTOR FIELDS
707. On the rate of convergence in Wasserstein distance of the empirical measure, PTRF
706. Improvement of Wu's logarithmic Sobolev inequality via the Poisson-Föllmer process, ECP
705. Thrifty approximations of convex bodies by polytopes
704. [Chaining Mutual Information and Tightening Generalization Bounds; Simple and Sharp Generalization Bounds via Lifting](#)
703. Complexity Dependent Error Rates For Physics-Informed Statistical Learning Via The Small-Ball Method
702. Ivan Oseledets, Tensor-train decomposition
701. A simple Fourier analytic proof of the AKT optimal matching theorem
700. Optimal matching of random samples and rates of convergence of empirical measures, M. Ledoux
699. [Theory and computation for structured variational inference](#), Sinho Chewi
698. Laplace Learning in Wasserstein Space, Manifold learning in metric spaces

697. Fast Direct Solvers, Per-Gunnar Martinsson And Michael O'neil
696. Statistical And Computational Limits For Sparse Matrix Detection
695. [Sparse Linear Regression is Easy on Random Supports, Raghu Meka](#)
694. Vershynin's paper: "On the Dimension-Free Concentration of Simple Tensors via Matrix Deviation", is published at Journal of Theoretical Probability 2026
693. Thesis On the Approximability of Injective Tensor Norm, 2019, Vijay Bhattiprolu
692. [Distributional Shrinkage I: Universal Denoisers in Multi-Dimensions, Tengyuan Liang](#)
691. Book: Topics in Probability, Parametric Estimation and Stochastic Calculus, by LEVI LOPES DE LIMA
690. Book: Bandit Convex Optimisation, by Tor Lattimore
689. Overview: The Probably Approximately Correct (PAC) Learning Model in Computational Learning Theory
688. SRMD: Sparse random mode decomposition
687. Randomly sparsified Richardson iteration: A dimension-independent sparse linear solver, CPAM 2025
686. Optimal Scaling for the Proximal Langevin Algorithm in High Dimensions
685. Central limit theorem for high temperature Ising models via martingale embedding, Xiao Fang, CUHK
684. Convergence of numerical time-averaging and stationary measures via Poisson equations, SINUM 2010
683. A Course in Interacting Particle Systems, Jan M. Swart
682. [Tail Probabilities Of The Maxima Of Multilinear Forms And Their Applications](#)
681. Tensor Analysis of ANOVA Decomposition
680. [Book: The Principles of Diffusion Models: From Origins to Advances](#)
679. Data-driven Learning of Interaction Laws in Multispecies Particle Systems with Gaussian Processes: Convergence Theory and Applications, Sui Tang
678. A Course in Metric Geometry
677. [The Functional Graphical Lasso](#), AOS
676. On the Loewner Framework, the Kolmogorov Superposition Theorem, and the Curse of Dimensionality, SIAM Review
675. The Fundamental Subspaces of Ensemble Kalman Inversion, SIAM Review
674. Sharp Inequalities Between Zolotarev And Wasserstein Distances In $\mathcal{P}_2(\mathbb{R}^d)$
673. [About the optimizer Muon: Isotropic Curvature Model for Understanding Deep Learning Optimization: Is Gradient Orthogonalization Optimal? Weijie Su](#)
672. Beyond Covariance Matrix: The Statistical Complexity of Private Linear Regression, MIT
671. [A computational fluid mechanics solution to the Monge-Kantorovich mass transfer problem, Benamou and Brenier, 2000](#)
670. Statistical Properties of Rectified Flow
669. Curvature Of High-Dimensional Data

668. Consensus-based sampling
667. Dynamical sampling
666. On Purely Private Covariance Estimation
665. Jianfeng Lu ICM 2026: Quantitative Hypocoercivity and Lifting of Classical and Quantum Dynamics
664. Empirical Orlicz norms
663. Cluster Formation In Diffusive Systems, Pavliotis
662. Spectral Perturbation Bounds for Low-Rank Approximation with Applications to Privacy, Van H. Vu
661. Estimation of Stochastic Optimal Transport Maps, Ziv Goldfeld
660. A fast spectral overlapping domain decomposition method with discretization-independent conditioning bounds
659. Spectral asymptotics for contracted tensor ensembles, Jorge Garza-Vargas
658. Annealed almost periodic entropy, Tim Austin
657. Quantum signal processing and nonlinear Fourier analysis
656. Error Analysis of Triangular Optimal Transport Maps for Filtering
655. Introduction to quantum graphs, Can one hear the shape of a graph?
654. Computing Extreme Singular Values of Free Operators, Ramon Van Handel
653. A Rigorous Theory of Conditional Mean Embeddings
652. Sparse Grids in a Nutshell, Sparse grids
651. On hypoellipticity of degenerate operators in testing and detection problems, Erhan Bayraktar, UMich
650. Error Estimates for Sparse Tensor Products of B-spline Approximation Spaces
649. Complexity Dependent Error Rates For Physics-Informed Statistical Learning Via The Small-Ball Method
648. Thresholded Lasso for high dimensional variable selection, Shuheng Zhou
647. Column and Row Subset Selection using Nuclear Scores, Michael Lindsey
<https://www.imsi.institute/videos/column-and-row-subset-selection-using-nuclear-scores/>
646. Beyond Sparse Denoising In Frames: Minimax Estimation With A Scattering Transform
645. Sharp comparisons between sliced And standard 1-Wasserstein distances, Figalli
 They proved that: For any dimension $d \geq 2$, there exists a constant c_d such that for all $R > 0$ and all μ, ν in $\mathcal{P}(\mathbb{R}^d)$ supported on B_R , one has
- $$W_1(\mu, \nu) \leq c_d R^{\frac{d-1}{d}} SW_1(\mu, \nu)^{\frac{1}{d}}.$$
644. Exercises in Mathematics of Data Science, Afonso S. Bandeira
643. Formation of clusters and coarsening in weakly interacting diffusions, Hairer and Pavliotis
642. Spectral Thresholds in Correlated Spiked Models and Fundamental Limits of Partial Least Squares
641. SIAM Journal on Life Sciences

640. Parameter Estimation in an SPDE Model for Cell Repolarization
639. On The Structure Of Stationary Solutions To Mckean-Vlasov Equations With Applications To Noisy Transformers, Philippe Rigollet
638. Fast Discrete Curvelet Transforms; Synchrosqueezed Wavelet Transforms: An Empirical Mode Decomposition-Like Tool
637. Probabilistic PCA on tensors (Q: can we learn operators between tensor spaces?)
636. Inverse Problem for the Yang–Mills Equations, CMP
635. Tensor tomography on surfaces, *Inventiones mathematicae*
634. Applications of AAA rational approximation, Yuji Nakatsukasa, Lloyd N. Trefethen, *Acta Numerica* 2025
633. Bryon Aragam: Optimality and computational barriers in variable selection under dependence; Differentiable Structure Learning for General Binary Data
632. Neural Triangular Transport Maps: A New Approach Towards Sampling in Lattice QCD, Youssef Marzouk
631. <https://bernoulli.epfl.ch/programs/summer-school-on-the-mathematical-aspects-of-the-data-science/>
630. Free cumulants and freeness for unitarily invariant random tensors
629. Charles Bordenave and Benoît Collins: Eigenvalues of random lifts and polynomials of random permutation matrices. *Annals of Mathematics*
628. **Multiscale regression on unknown manifolds, Mauro Maggioni**
627. **Sharp Spectral Rates for Koopman Operator Learning, Massimiliano Pontil**
626. A randomized algorithm to solve reduced rank operator regression
625. Bayesian nonparametric inference in Mckean-Vlasov models
624. Vecchia approximation [43, 28]
623. A Rigorous Theory of Conditional Mean Embeddings
622. Parametric PDEs: sparse or low-rank approximations?
621. Bayesian Nonparametric Inference In Mckean–Vlasov Models
620. A Fourier-based inference method for learning interaction kernels in particle systems, by Pavliotis and Zanoni
619. Rotated Mean-Field Variational Inference and Iterative Gaussianization
618. Concentration and consistency of sample covariance matrix functionals in sub-Gaussian models, Anna Skripka
617. Polynomial mixing of the critical Ising model on sparse Erdos-Renyi graphs, Allan Sly
616. Critical Attention Scaling In Long-Context Transformers
615. Pivotal CLTs for Pseudolikelihood via Conditional Centering in Dependent Random Fields, Nabarun Deb
614. Perspectives on Stochastic Localization

613. Bilevel Optimization For Learning Hyperparameters: Application To Solving Pdes and Inverse Problems With Gaussian Processes
612. The surprising efficiency of temporal difference learning for rare event prediction, Jonathan Weare
611. Data selection: at the interface of PDE-based inverse problem and randomized linear algebra
610. Random Matrices, Intrinsic Freeness, and Sharp Non-Asymptotic Inequalities, Afonso Bandeira
609. Spin Glasses And The Parisi Formula, Jean-Christophe Mourrat
608. Mathematical and numerical analysis of quantum signal processing, a survey article by Lin Lin
607. Low-dimensional Subspace Regularization through Structured Tensor Priors, SIAM/ASA JUQ
606. Nonparametric inference under shape constraints: past, present and future, Richard J. Samworth
605. Towards a Lean proof of Fermat's Last Theorem, Kevin Buzzard, Richard Taylor
604. The Future of Artificial Intelligence and the Mathematical and Physical Sciences (AI+MPS)
603. Fast randomized least-squares solvers can be just as accurate and stable as classical direct solvers, CPAM
602. Is it Safe to Deploy AI in Safety-Critical Systems? Tamara G. Kolda
601. Beyond Johnson-Lindenstrauss: Uniform Bounds for Sketched Bilinear Forms
600. Optimal transportation, modelling and numerical simulation, Acta Numerica (2021)
599. Acoustic echoes reveal room shape
598. Kernel-based Stochastic Approximation Framework for Nonlinear Operator Learning
597. Data-Efficient Kernel Methods For Learning Hamiltonian Systems, Houman Owhadi
596. On Efficient Block Krylov Solvers For \mathcal{H}^2 -Matrices
595. Bias-variance Tradeoff in Tensor Estimation
594. Randomized Matrix Computations: Themes And Variations, Joel A. Tropp
593. A General Stochastic Maximum Principle For Optimal Control Problems, Shige Peng
592. Multiresolution kernel matrix algebra
591. Numerical Conformal Mapping, Lloyd N. Trefethen
590. Repulsive Monte Carlo on the sphere for the sliced Wasserstein distance
589. Deep Gaussian processes: construction, analysis and algorithms, Aretha Teckentrup
588. Optimal Delocalization for Non-Hermitian Eigenvectors
587. A Kernel-based Stochastic Approximation Framework for Nonlinear Operator Learning
586. Robust, sub-Gaussian mean estimators in metric spaces
585. Eigen-convergence of Gaussian kernelized graph Laplacian by manifold heat interpolation
584. Long-time dynamics and universality of nonconvex gradient descent, Qiyang Han
583. Operator learning for hyperbolic partial differential equations
582. Asymptotic theory of geometric and adaptive k -means clustering, AOS

- 581. Entropy and Learning of Lipschitz Functions under Log-Concave Measures, Boaz Klartag
- 580. Noncommutative Regularity Structures, Martin Hairer
- 579. A unified theory of the high-dimensional Laplace approximation with application to Bayesian inverse problems
- 578. Convergence properties of dynamic mode decomposition for analytic interval maps, CPAM, see Igor Mezic's work
- 577. Fast Kernel Methods: Sobolev, Physics-Informed, And Additive Models
- 576. A Hierarchical Entropy Method For The Delocalization Of Bias In High-Dimensional Langevin Monte Carlo
- 575. Testing The Manifold Hypothesis, JAMS
- 574. Fast Multipole Method With Complex Coordinates
- 573. Randomly sparsified Richardson iteration: A dimension-independent sparse linear solver, CPAM
- 572. Heuristic approaches to obtain low-discrepancy point sets via subset selection
- 571. Regularizing Random Points By Deleting A Few
- 570. A Threshold For Online Balancing Of Sparse I.I.D. Vectors
- 569. A perturbative analysis for noisy spectral estimation, Lexing Ying
- 568. The Future of Artificial Intelligence and the Mathematical and Physical Sciences (AI+MPS), Community Paper from the NSF Future of AI+MPS Workshop Cambridge, Massachusetts — March 24–26, 2025
- 567. Log correlated fields in random matrices and their extremes, Notes for Lectures, Ofer Zeitouni
- 566. Concentration and moment inequalities for sums of independent heavy-tailed random matrices, PTRF
- 565. Alice Cortinovis - Numerical approximation of traces of matrix functions
- 564. [Stochastic Dual Dynamic Programming \(SDDP\)](#) and Its Variants: A Review (SIAM Review)
- 563. High-Order Langevin Monte Carlo Algorithms
- 562. Simple and Sharp Generalization Bounds via Lifting, Jingbo Liu, “a concise proof of the majorizing measure theorem, providing explicit constants”
- 561. Constructive ℓ_2 -Discrepancy Minimization with Additive Deviations
- 560. [Learning Theory From The Viewpoint Of Algorithmic Information Theory: Kolmogorov Complexity Meets Kernel Methods, Bridging Algorithmic Information Theory and Machine Learning: Clustering, density estimation, Kolmogorov complexity-based kernels, and kernel learning in unsupervised learning, Houman Owhadi](#)
- 559. A Convergent Adaptive Finite Element Stochastic Galerkin Method Based On Multilevel Expansions Of Random Fields, SINUM
- 558. Quasi-Monte Carlo for partial differential equations with generalized Gaussian input uncertainty, SINUM
- 557. Spectral representations of interpolation spaces of reproducing kernel Hilbert spaces
- 556. Orthogonal Dice
- 555. Nonparametric Inference for Noise Covariance Kernels in Parabolic SPDEs using Space-Time Infill-Asymptotics

- 554. Rates of convergence for extremal spacings in Kakutani's random interval-splitting process
- 553. On The Convergence Of Adaptive Approximations For Stochastic Differential Equations
- 552. [Operator learning meets inverse problems: A probabilistic perspective](#)
- 551. Feynman path integrals on compact Lie groups with bi-invariant Riemannian metrics
- 550. Lifting the Curse of Dimensionality, Frances Y. Kuo and Ian H. Sloan
- 549. [Partitions for stratified sampling, A sharp discrepancy bound for jittered sampling](#)
- 548. Asymptotic Theory for Linear Functionals of Kernel Ridge Regression
- 547. Underdamped Langevin MCMC with third order convergence
- 546. Jonathan W. Siegel's works on approximation theory: Gelfand widths
- 545. Minimax estimation of smooth densities in Wasserstein distance
- 544. Non-parametric estimates for graphon mean-field particle systems
- 543. Information geometry and asymptotics for Kronecker covariances
- 542. Limiting spectral distribution for large sample correlation matrices
- 541. An equivalence principle for the spectrum of random inner-product kernel matrices with polynomial scalings
- 540. Transport dependency: Optimal transport based dependency measures
- 539. Optimal Subspace Embeddings: Resolving Nelson-Nguyen Conjecture Up to Sub-Polylogarithmic Factors
- 538. Jonathan W. Siegel: Nearly Optimal Bounds On The Fourier Sampling Numbers Of Besov Spaces; Constructive Approximation: Advanced Problems
- 537. Localized Discrete Empirical Interpolation Method
- 536. Optimality Of Empirical Measures As Quantizers, by March Boedihardjo. Optimal Matching of Random Samples and Rates of Convergence of Empirical Measures; Foundations of quantization for probability distributions
- 535. An Introduction to Sliced Optimal Transport: Foundations, Advances, Extensions, and Applications
- 534. On The Spectral Norm Of Rademacher Matrices, Rafal Latala
- 533. Low-rank tensor methods for partial differential equations, Acta Numerica
- 532. Discrete Pseudo-differential Operators and Applications to Numerical Schemes
- 531. Sparsifying Sums of Positive Semidefinite Matrices
- 530. [Random approximation in numerical analysis](#)
- 529. A Tensor-Based Dynamic Mode Decomposition Based On The \star_M -Product
- 528. [A variational approach to dimension-free self-normalized concentration](#)
- 527. Estimating the size of a set using cascading exclusion
- 526. Does block size matter in randomized block Krylov low-rank approximation?
- 525. Mathematical Opportunities in Digital Twins (MATH-DT)

524. Stéphane Mallat: A Wavelet Tour of Signal Processing (Third Edition). CHAPTER 9 -Approximations in Bases
523. On the optimization of discrepancy measures
522. A resolution of the Gaussian hyperplane tessellation conjecture on the sphere, by Dirksen
521. [Decoupling via Affine Spectral-Independence: Beck-Fiala and Komlos Bounds Beyond Banaszczyk](#)
520. Orbit recovery for spherical functions
519. Balancing covariates in randomized experiments with the gram–schmidt walk design
518. An Improved Bound for the Beck-Fiala Conjecture, by Haotian Jiang and Nikhil Bansal
517. A Gaussian fixed point random walk
516. Numerical PDE solvers outperform neural PDE solvers
515. Optimal Online Discrepancy Minimization
514. Fourier sliced-Wasserstein embedding for multisets and measures
513. Concentration of measure for non-linear random matrices with applications to neural networks and non-commutative polynomials
512. Thin-shell bounds via parallel coupling
511. An explicitly-sparse representation for oscillatory kernels with wave atom-like functions
510. Gaussian sequence model: sample complexities of testing, estimation and LFHT
509. On weak convergence of Gaussian conditional distributions
508. Jiaao Li mentioned the paper “Sampling-based Algorithms for Optimal Motion Planning”
507. Infinite matrix representations of classes of pseudo-differential operators
506. Uniform Mean Estimation for Heavy-Tailed Distributions via Median-of-Means
505. Analysis of Tensor Approximation Schemes for Continuous Functions, Michael Griebel and Helmut Harbrecht
504. Sparse grids, Acta Numerica 2004
503. A Simple, Bias-free Approximation of Covariance Functions by the Multilevel Monte Carlo Method Having Nearly Optimal Complexity*
502. Variational Inference for Latent Variable Models in High Dimensions
501. Optimal low-rank approximations for linear Gaussian inverse problems on Hilbert spaces Part I: posterior covariance approximation
500. Distribution of singular values in large sample cross-covariance matrices
499. [Automatic reproducing kernel and regularization for learning convolution kernels](#)
498. Sharp constants relating the sub-Gaussian norm and the sub-Gaussian parameter
497. On learning Gaussian multi-index models with gradient flow part I: General properties and two-timescale learning, CPAM
496. A Vershik–Kerov theorem for wreath products, by Sourav Chatterjee and Persi Diaconis

- 495. Coverage errors for Student's t confidence intervals comparable to those in Hall (1988), by Art Owen
- 494. Entropy and determinants for unitary representations, by Tim Austin
- 493. Nadaraya-Watson Type Estimator of the Transition Density Function for Diffusion Processes
- 492. Extropy: Complementary Dual of Entropy; Extropy Rate: Properties and Application in Feature Selection
- 491. Some notes on higher order concentration of measure
- 490. Multi-species McKean-Vlasov dynamics in non-convex landscapes
- 489. The Nonparanormal: Semiparametric Estimation of High Dimensional Undirected Graphs
- 488. Blind free deconvolution over one-parameter sparse families via eigenmatrix
- 487. Some FKG inequalities for stochastic processes
- 486. Gromov-Wasserstein distances: Entropic regularization, duality and sample complexity; Gradient Flows and Riemannian Structure in the Gromov-Wasserstein Geometry. See Ziv Goldfeld's works.
- 485. Muon: <https://moonshotai.github.io/Kimi-K2/> Muon Optimizes Under Spectral Norm Constraints, Analysis of Muon's Convergence and Critical Batch Size, <https://kellerjordan.github.io/posts/muon/>
- 484. A Mathematical Perspective On Transformers
- 483. On the quality of randomized approximations of Tukey's depth
- 482. High-dimensional bootstrap and asymptotic expansion
- 481. Polynomial approximation of noisy functions
- 480. [A convex lifting approach for the Calderón problem](#)
- 479. Long Random Matrices and Tensor Unfolding
- 478. Gaussian concentration bounds for probabilistic cellular automata
- 477. Wick theorem for analytic functions of Gaussian fields
- 476. A simple decoupling inequality in probability theory, Roman Vershynin
- 475. On the pointwise and sup-norm errors for local regression estimators
- 474. An approximation theory for Markov chain compression
- 473. Fast and Accurate Interpolative Decompositions for General, Sparse, and Structured Tensors
- 472. Phase Transition in Nonparametric Minimax Rates for Covariate Shifts on Approximate Manifolds
- 471. Density estimation for elliptic pde with random input by preintegration and quasi-monte carlo methods
- 470. Posterior covariance structures in Gaussian processes, Lengthscale-informed sparse grids for kernel methods in high dimensions
- 469. Manifold learning in Wasserstein space
- 468. A Linear-Complexity Tensor Butterfly Algorithm for Compressing High-Dimensional Oscillatory Integral Operators
- 467. Error analysis of the gram low-rank approximation
- 466. Multidimensional Empirical Wavelet Transform

- 465. Randomized Nyström Approximation of Non-negative Self-Adjoint Operators
- 464. Random fields on Hilbert spaces with their equivalent Gaussian measures
- 463. Convergence of Empirical Optimal Transport in Unbounded Settings
- 462. From dense to sparse design: Optimal rates under the supremum norm for estimating the mean function in functional data analysis
- 461. Multiplicative Dynamic Mode Decomposition
- 460. A linear-complexity tensor butterfly algorithm for compressing high-dimensional oscillatory integral operators
- 459. Query Efficient Structured Matrix Approximation
- 458. A short proof of Isserlis' theorem
- 457. Sparse tensor discretizations of high-dimensional parametric and stochastic PDEs, *Acta Numerica* (2011)
- 456. The Restricted Isometry Property of Subsampled Fourier Matrices, An Improved Estimate in the Restricted Isometry Problem
- 455. An approximation theory for Markov chain compression
- 454. Concentration inequalities for random dynamical systems
- 453. On a spherically lifted spin model at finite temperature
- 452. Khinchin inequalities for uniforms on spheres with a deficit
- 451. A book: «Stochastic Partial Differential Equations, Space-time White Noise and Random Fields»
- 450. [Average-case complexity in statistical inference: A puzzle-driven research seminar](#)
- 449. Monte Carlo and quasi-Monte Carlo integration for likelihood functions
- 448. Thinning To Improve Two-Sample Discrepancy, by Roman Vershynin
- 447. Gaussian Processes and Kernel Methods: A Review on Connections and Equivalences
- 446. Quantum state tomography (QST)
- 445. Generative modelling meets Bayesian inference: a new paradigm for inverse problems
- 444. Tensor recovery from quantized measurements based on modewise operators
- 443. Low-rank matrix estimation with inhomogeneous noise
- 442. Linear cost and exponentially convergent approximation of Gaussian Matérn processes on intervals, *JMLR*, David Bolin
- 441. On the upper bounds for the matrix spectral norm
- 440. Distribution free M-estimation
- 439. A Comparison of Three Methods for Selecting Values of Input Variables in the Analysis of Output From a Computer Code
- 438. Large Sample Properties of Simulations Using Latin Hypercube Sampling
- 437. Adversarial learning for nonparametric regression: Minimax rate and adaptive estimation

- 436. Lengthscale-informed sparse grids for kernel methods in high dimensions
- 435. Revisiting mean estimation over lp balls: Is the MLE optimal?
- 434. [High-probability minimax lower bounds](#)
- 433. [Low degree polynomials, survey by Alexander S. Wein: Computational Complexity of Statistics: New Insights from Low-Degree Polynomials](#)
- 432. On the Benefits of Accelerated Optimization in Robust and Private Estimation
- 431. Variational Inference for Latent Variable Models in High Dimensions
- 430. Quantum Circuit Encodings of Polynomial Chaos Expansions
- 429. On Learning Rates and Schrödinger Operators
- 428. On the compressibility of tensors
- 427. Quantum Statistics: Quantum State Tomography via Compressed Sensing [23]; Optimal tradeoffs for estimating Pauli observables
- 426. Minimax Rates for the Estimation of Eigenpairs of Weighted Laplace-Beltrami Operators on Manifolds, Nicolas Gracia Trillos, Chenghui Li,
- 425. A Mathematical Perspective On Contrastive Learning, by Andrew Stuart et al.
- 424. Distribution free M-estimation, by John Duchi
- 423. Learning the Infinitesimal Generator of Stochastic Diffusion Processes
- 422. Random matrix approximation of spectra of integral operators, by Koltchinskii and Giné
- 421. Dissipative Preparation of Many-Body Quantum States: Towards Practical Quantum Advantage (Lin Lin)
- 420. A note on the improved sparse Hanson-Wright inequalities
- 419. Do Large Language Models (Really) Need Statistical Foundations? (Weijie Su)
- 418. Subspace estimation under coarse quantization
- 417. [“Monte Carlo convergence rates for kth moments in Banach spaces”, by Kristin Kirchner and Christoph Schwab](#)
- 416. Phasebook: A Survey of Selected Open Problems in Phase Retrieval
- 415. [self-balancing walk](#)
- 414. Dimension-independent convergence rates of randomized nets using median-of-means
- 413. Ensemble samplers with affine invariance
- 412. Noise sensitivity and learning lower bounds for hierarchical functions, Elchanan Mossel
- 411. From combinatorics to partial differential equations, Felix Otto
- 410. [Robust and Tractable Multidimensional Exponential Analysis](#)
- 409. A Fourier-based inference method for learning interaction kernels in particle systems
- 408. Learning dynamically inspired invariant subspaces for Koopman and transfer operator approximation
- 407. [Smoothed analysis](#) in compressed sensing

- 406. LLM watermarking using mixtures and statistical-to-computational gaps, by Vershynin
- 405. Robust and Tractable Multidimensional Exponential Analysis, by Mhaskar et al.
- 404. Sharp empirical Bernstein bounds for the variance of bounded random variables
- 403. Learning Kernels with Random Features
- 402. Multilevel Sampling in Algebraic Statistics, by Nathan Kirk
- 401. Connections between numerical integration, discrepancy, dispersion, and universal discretization
- 400. The method of cumulants for the normal approximation, Probability Surveys; Uniform-in-Time Estimates on the Size of Chaos for Interacting Particle Systems, by Pengzhi Xie
- 399. Quasi-Monte Carlo confidence intervals using quantiles of randomized nets
- 398. Empirical Bernstein and betting confidence intervals for randomized quasi-Monte Carlo
- 397. Maximal Inequalities for Independent Random Vectors
- 396. Randomstrasse101: Open Problems of 2024
- 395. A new analysis of empirical interpolation methods and Chebyshev greedy algorithms
- 394. “Matrix Concentration for Products”, FoCM
- 393. Persistence and Ball Exponents for Gaussian Stationary Processes, CPAM
- 392. Fast approximation by periodic kernel-based lattice-point interpolation with application in uncertainty quantification
- 391. Multilevel lattice-based kernel approximation for elliptic PDEs with random coefficients, by Michael B. Giles
- 390. Dynamical mean-field analysis of adaptive Langevin diffusions: Propagation-of-chaos and convergence of the linear response
- 389. Dynamical mean-field analysis of adaptive Langevin diffusions: Replica-symmetric fixed point and empirical Bayes
- 388. Equispaced Fourier Representations for Efficient Gaussian Process Regression from a Billion Data Points
- 387. Precise Error Rates for Computationally Efficient Testing
- 386. Concentration inequalities and cut-off phenomena for penalized model selection within a basic Rademacher framework
- 385. [A criterion on the free energy for log-Sobolev inequalities in mean-field particle systems](#)
- 384. Learning Interaction Kernels in Stochastic Systems of Interacting Particles from Multiple Trajectories, FoCM
- 383. Bayesian Nonparametric Inference in Elliptic PDEs: Convergence Rates and Implementation
- 382. Optimal minimax rate of learning nonlocal interaction kernels, by Fei Lu
- 381. A friendly introduction to triangular transport
- 380. Matrix concentration inequalities for dependent binary random variables
- 379. [Covariance loss, Szemerédi regularity, and differential privacy](#)

- 378. Semi-parametric Bernstein-von Mises theorem in linear inverse problems
- 377. The Distributional Koopman Operator for Random Dynamical Systems, by Alex Townsend
- 376. Tensor network approximation of Koopman operators
- 375. Estimation and inference in error-in-operator model, Vladimir Spokoiny
- 374. Learning without Concentration, Learning without Concentration for General Loss Functions, by S. Mendelson
- 373. **Can we spot a fake:** open question: whether the detectability radius is always equivalent to the focused Gaussian width?
- 372. On the robustness of the minimum ℓ_2 interpolator
- 371. Pattern reconstruction with restricted Boltzmann machines, Mathematical Statistics and Learning
- 370. Low-Rank Thinning
- 369. Sparse PCA: Phase Transitions in the Critical Regime
- 368. On the compressibility of integral operators in anisotropic wavelet coordinates
- 367. **The power of online thinning in reducing discrepancy**
- 366. Maximum of the Characteristic Polynomial of I.I.D. Matrices
- 365. Freezing transition, characteristic polynomials of random matrices, and the Riemann zeta function, FHK conjecture
- 364. <http://www.stat.yale.edu/~pollard/Books/Pttm/VCsets22mar25.pdf>
- 363. Quantum mechanics and data assimilation
- 362. Physics-informed spectral approximation of Koopman operators, see Dimitrios Giannakis's work
- 361. Lattice packing of spheres in high dimensions using a stochastically evolving ellipsoid, by Boaz Klartag
- 360. Embrace rejection: Kernel matrix approximation by accelerated randomly pivoted Cholesky
- 359. Rigorous results for timelike Liouville field theory
- 358. On the best approximation by finite Gaussian mixtures
- 357. Minmax Trend Filtering: Generalizations of Total Variation Denoising via a Local Minmax/Maxmin Formula
- 356. Universal coding, intrinsic volumes, and metric complexity
- 355. A new upper bound for the growth factor in Gaussian elimination with complete pivoting
- 354. Robust Completion For Rank-1 Tensors With Noises
- 353. Tensor free probability theory: asymptotic tensor freeness and central limit theorem
- 352. Tracy-Widom, Gaussian, and Bootstrap: Approximations for Leading Eigenvalues in High-Dimensional PCA
- 351. Feature learning from non-Gaussian inputs: the case of Independent Component Analysis in high dimensions
- 350. Unifying Different Theories of Conformal Prediction, by Rina Foygel Barber and Ryan J. Tibshirani

- 349. Rigorous results for timelike Liouville field theory, by Sourav Chatterjee
- 348. Variational Tail Bounds for Norms of Random Vectors and Matrices
- 347. A Random Matrix Perspective on Random Tensors
- 346. Embedding Subspaces of L_1 into ℓ_1^N , Michel Talagrand
- 345. Embedding Subspaces of L_p in ℓ_p^N , Michel Talagrand
- 344. Embedding Subspaces of L_p into $\ell_p^N, 0 < p < 1$
- 343. Digital Twins: Synergy Between Data Assimilation and Optimal Control
- 342. Dimension-Robust MCMC in Bayesian Inverse Problems
- 341. A new book in IMS: Dependence Models via Hierarchical Structures
- 340. Why are there so many power laws in economics? by Stefan Steinerberger
- 339. Accelerating a restarted krylov method for matrix functions with randomization
- 338. Nonparametric conditional U-statistics on Lie groups with measurement errors
- 337. Column and row subset selection using nuclear scores: algorithms and theory for Nyström approximation, CUR decomposition, and graph Laplacian reduction, by Michael Lindsey
- 336. A Friendly Introduction To Triangular Transport
- 335. Wasserstein bounds for non-linear Gaussian filters
- 334. Fluctuations in random field Ising models
- 333. Sampling-based algorithms for optimal motion planning, RRT*; Deterministic sampling-based motion planning: Optimality, complexity, and performance
- 332. Many antipodes implies many neighbors
- 331. Skewness of a randomized quasi-Monte Carlo estimate
- 330. Nonparametric MLE for Gaussian Location Mixtures: Certified Computation and Generic Behavior, by Yury Polyanskiy and Mark Sellke
- 329. Classification of small-ball modes and maximum a posteriori estimators
- 328. The broken sample problem revisited: Proof of a conjecture by Bai-Hsing and high-dimensional extensions
- 327. A Spectral Approach to Optimal Control of the Fokker–Planck Equation
- 326. Fast and Accurate Interpolative Decompositions for General, Sparse, and Structured Tensors
- 325. Weingarten Calculus For Centered Random Permutation Matrices
- 324. Glivenko–Cantelli for f-divergence
- 323. Variational Tail Bounds for Norms of Random Vectors and Matrices
- 322. Optimal Matching Problem on the Boolean Cube
- 321. Convergence of unadjusted Langevin in high dimensions: delocalization of bias
- 320. Wick–Malliavin approximation to nonlinear stochastic partial differential equations: analysis and simulations

- 319. [David Pollard's book: Probability tools, tricks, and miracles.](#)
- 318. Computational bottlenecks for denoising diffusions
- 317. [On the Injective Norm of Sums of Random Tensors and the Moments of Gaussian Chaoses](#)
- 316. Maximal Inequalities For Separately Exchangeable Empirical Processes
- 315. <https://math.umd.edu/mariakc/BrinML2024Slides/SamuelLanthaler.pdf>
- 314. Fast exact recovery of noisy matrix from few entries: the infinity norm approach
- 313. Free cumulants and freeness for unitarily invariant random tensors
- 312. Statistical limits in random tensors with multiple correlated spikes
- 311. [Improving discrepancy by moving a few points](#)
- 310. Improved Product-state Approximation Algorithms for Quantum Local Hamiltonians, Product-state approximations to quantum ground states.
- 309. Almost Optimal Tensor Sketch
- 308. Optimal Recovery Meets Minimax Estimation
- 307. Subspace and DOA estimation under coarse quantization, by Dirksen
- 306. The likelihood operator and Fisher information in quantum probability
- 305. Minimax rate for learning kernels in operators
- 304. Random matrices acting on sets: independent columns
- 303. Daniel Bartl and Shahar Mendelson's two papers:
 - 1) Do we really need the rademacher complexities?
 - 2) Uniform mean estimation via generic chaining.
- 302. Dimension-free bounds in high-dimensional linear regression via error-in-operator approach, by Vladimir Spokoiny
- 301. Gaps between singular values of sample covariance matrices
- 300. Discrepancy Sets and Pseudorandom Generators for Combinatorial Rectangles
- 299. Operator $\ell_\infty \rightarrow \ell_\infty$ norm of products of random matrices with iid entries
- 298. Low-dimensional functions are efficiently learnable under randomly biased distributions
- 297. Nonasymptotic and distribution-uniform Komlós-Major-Tusnády approximation
- 296. Private Low-Rank Approximation for Covariance Matrices, Dyson Brownian Motion, and Eigenvalue-Gap Bounds for Gaussian Perturbations (Journal of ACM)
- 295. Kernel-Based Regularized Learning with Random Projections: Beyond Least Squares
- 294. Berry-Esseen bounds for functionals of independent random variables, by Qi-Man Shao
- 293. Operator $\ell_p \rightarrow \ell_q$ norms of Gaussian Matrices, by Rafal Latała
- 292. Randomized block-Krylov subspace methods for low-rank approximation of matrix functions
- 291. Low-rank approximation of high-dimensional functions in isotropic and anisotropic Sobolev spaces, by Helmut Harbrecht

- 290. Fast exact recovery of noisy matrix from few entries: the infinity norm approach, Van Vu
- 289. Limits of Learning Dynamical Systems
- 288. Sharp Bounds for Max-sliced Wasserstein Distances, by March Boedihardjo; Structure preservation via the Wasserstein distance, by Mendelson
- 287. Univariate-Guided Sparse Regression, by Sourav Chatterjee, Trevor Hastie, Robert Tibshirani
- 286. A CLT in Stein's Distance for Generalized Wishart Matrices and Higher-Order Tensors, dimension-free CLT and chaining?
- 285. Moments of the Gaussian Chaos, by Joseph Lehec, which simplifies Latala's proof using chaining.
- 284. Hyperbolic Concentration, Anti-concentration, and Discrepancy
- 283. [Comparison theorems for the minimum eigenvalue of a random positive-semidefinite matrix](#), by Joel A. Tropp
- 282. The distribution of Rademacher sums [33]
- 281. Concentration of discrepancy-based approximate bayesian computation via rademacher complexity (AoS future paper)
- 280. Blind free deconvolution over one-parameter sparse families via eigenmatrix
- 279. Gaussian Correlation via Inverse Brascamp-Lieb
- 278. Optimal minimax rate of learning interaction kernels
- 277. [44, Chapter 11] on Dvoretzky-Milman Theorem
- 276. Quasi-Monte Carlo Beyond Hardy-Krause
- 275. A remark on Kashin's discrepancy argument and partial coloring in the Komlós conjecture, by Zhivotovskiy; Lattice Rules Meet Kernel Cubature by Claudia Schillings
- 274. Zeros and Critical Points of Gaussian Fields: Cumulants Asymptotics and Limit Theorems
- 273. Randomized compression of rank-structured matrices accelerated with graph coloring
- 272. Strong maximum a posteriori estimation in Banach spaces with Gaussian priors (Inverse Problems)
- 271. Trade-off Between Dependence and Complexity for Nonparametric Learning — an Empirical Process Approach
- 270. The noise barrier and the large signal bias of the Lasso and other convex estimators
- 269. Spectral gap of nonreversible markov chains
- 268. Nearest neighbor empirical processes
- 267. March Boedihardjo: Injective norm of random tensors with independent entries
- 266. Error estimation for quasi-Monte Carlo, by Art B. Owen
- 265. Learning Operators with Stochastic Gradient Descent in General Hilbert Spaces
- 264. Shifted Composition
- 263. Qiyang Han's talk: Noisy+Linear+Inverse+Problems+Under+Convex+ConstraintsA+Exact+Risk+Asymptotics+in+Hi+Qiyang+Han
- 262. Adaptive Operator Learning for Infinite-Dimensional Bayesian Inverse Problems

- 261. Convergence of Statistical Estimators via Mutual Information Bounds
- 260. Matrix chaos inequalities and chaos of combinatorial type, by AFONSO S. BANDEIRA, etc.
- 259. Statistical Learning Theory for Neural Operators, by Sven Wang, etc.
- 258. Convergence Rates for Learning Linear Operators from Noisy Data
- 257. Large Precision Matrix Estimation with Unknown Group Structure (JASA)
- 256. Quantified cramer-wold continuity theorem for the kantorovich transport distance
- 255. A Statistical Analysis for Supervised Deep Learning with Exponential Families for Intrinsically Low-dimensional Data
- 254. Variance estimation in compound decision theory under boundedness, by Subhodh
- 253. Spectral norm posterior contraction in Bayesian sparse spiked covariance matrix model: Cayley transform of subspaces and Euclidean representation of low-rank matrices
- 252. Fast Direct Methods for Gaussian Processes
- 251. Comparison and anti-concentration bounds for maxima of Gaussian random vectors [16]
- 250. Sparse linear regression and lattice models [25]
- 249. On the Approximability and Curse of Dimensionality of Certain Classes of High-Dimensional Functions, by Holger Wendland [39]
- 248. Generative diffusion in very large dimensions, Dynamical Regimes of Diffusion Models, Giulio Biroli and Marc Mézard
- 247. On the derivation of the homogeneous kinetic wave equation, CPAM
- 246. Hanson-Wright inequality and sub-gaussian concentration, by Mark Rudelson and Roman Vershynin; see also Vershynin's book, Chapter 6
- 245. Polynomial Mixing of the critical Glauber Dynamics for the Ising Model, by Allan Sly, six pages
- 244. A Data-Adaptive RKHS Prior for Bayesian Learning of Kernels in Operators, by Fei Lu
- 243. Anti-concentration inequalities for the difference of maxima of gaussian random vectors
- 242. Gaussian approximation for non-stationary time series with optimal rate and explicit construction
- 241. The ballistic limit of the log-Sobolev constant equals the Polyak-Lojasiewicz constant, by Sinho Chewi
- 240. A Geometric Perspective on the Injective Norm of Sums of Random Tensors, Haotian Jiang (somewhat extension of Van Handel's to tensor concentration)
- 239. Dimension-free deterministic equivalents and scaling laws for random feature regression, by Theodor Misiakiewicz etc.
- 238. Tensors in High-Dimensional Data Analysis: Methodological Opportunities and Theoretical Challenges (Annual Review of Statistics and Its Application)
- 237. Conditional simulation via entropic optimal transport: Toward non-parametric estimation of conditional Brenier maps
- 236. Pirogov-Sinai Theory Beyond Lattices
- 235. Functional linear and single-index models: A unified approach via Gaussian Stein identity
- 234. KACZMARZ KAC WALK, STEFAN STEINERBERGER

- 233. Sharp Matrix Empirical Bernstein Inequalities; Mean Estimation in Banach Spaces Under Infinite Variance and Martingale Dependence (Aaditya Ramdas)
- 232. Expected Information Gain Estimation via Density Approximations: Sample Allocation and Dimension Reduction
- 231. A Geometric Perspective on the Injective Norm of Sums of Random Tensors
- 230. Moment inequalities for sums of weakly dependent random fields, by Alexandra carpentier
- 229. Sparse hierarchical preconditioners using piecewise smooth approximations of eigenvectors
- 228. Multiplier u-processes: sharp bounds and applications
- 227. A note on the sparse Hanson-Wright inequality
- 226. On the conditions used to prove oracle results for the Lasso
- 225. Generative diffusion in very large dimensions
- 224. Simple Relative Deviation Bounds for Covariance and Gram Matrices
- 223. Finite-sample performance of the maximum likelihood estimator in logistic regression
- 222. Model-free Estimation of Latent Structure via Multiscale Nonparametric Maximum Likelihood, by Ruiyi Yang and Bryon Aragam
- 221. Hierarchical Interpolative Factorization for Elliptic Operators: Integral Equations
- 220. Bridging algorithmic information theory and machine learning, part ii: clustering and density estimation in unsupervised learning
- 219. Can we spot a fake? shahar mendelson, grigoris paouris, and roman vershynin
- 218. Breaking the curse of dimensionality in structured density estimation; Dimension-independent rates for structured neural density estimation; Bryon
- 217. “Laplace Transform Based Low-Complexity Learning of Continuous Markov Semigroups” by Lounici etc.
- 216. “Vecchia gaussian processes: probabilistic properties, minimax rates and methodological developments ”
- 215. “Linear cost and exponentially convergent approximation of Gaussian Matérn processes” by David Bolin etc.
- 214. An informal introduction to the Parisi formula. by Jean-Christophe Mourrat, see his “Expository papers”
- 213. “On the time complexity analysis of numerical percolation threshold estimation”
- 212. Multiplier U-processes: Sharp bounds and applications
- 211. Estimating functionals of probability densities, “Möbius inversion and the bootstrap” and refs therein, Yanjun Han and Koltchinkii’s series of work
- 210. “Optimal sparse volatility matrix estimation for high-dimensional itô processes with measurement errors”
- 209. Tensor-sparsity of solutions to high-dimensional elliptic partial differential equations
- 208. “Causal effect estimation under network interference with mean-field methods”, Subhabrata Sen
- 207. “An information-theoretic lower bound in time-uniform estimation” by John Duchi

206. Léo Miolane’s phd thesis, Chapter 2, pinning lemma and decoupling principle
205. On the representation and learning of monotone triangular transport maps; Inference via low-dimensional couplings
204. Information Theory with Kernel Methods, Francis Bach
203. “Sparse Representations, Inference and Learning”-Marc Mézard
202. *Factors of IID*: Sparse reconstruction in spin systems II: Ising and other factor of IID measures; Allan Sly and Lingfu Zhang’s paper “Ising model on trees and factors of IID”; Factors of IID on Trees (Russell Lyons); Ising models on locally tree-like graphs
201. Empirical Bernstein in smooth Banach spaces
200. Recent Applications of Dynamical Mean-Field Methods
199. Jean Barbier’s several interesting work, “The adaptive interpolation method: a simple scheme to prove replica formulas in Bayesian inference” “Optimal errors and phase transitions in high-dimensional generalized linear models”; Gerard Ben Arous, Wei-kuo Chen
198. Aaditya Ramdas’s advice (on his website)
197. 2022 IMS Rietz Lecture: "Statistical Tools for Random Objects in Metric Spaces" Hans-Georg Müller (metric statistics); Peter Hall, Functional data analysis and random objects
196. Multiscale Data-Driven Energy Estimation and Generation (Stéphane Mallat, Giulio Biroli); Generative diffusion in very large dimensions (Giulio Biroli, Marc Mézard)
195. Semi-Supervised Sparse Gaussian Classification: Provable Benefits of Unlabeled Data
194. Multifidelity Covariance Estimation via Regression on the Manifold of Symmetric Positive Definite Matrices
193. Martin Hairer’s notes: “On Malliavin’s proof of Hörmander’s theorem”
Weijun Xu’s introduction and several important refs:
1. Weyl, H., The method of orthogonal projection in potential theory, *Duke Math. J.* Vol.7, 414–444, 1940.
 2. Hörmander, L., Hypoelliptic second order differential equations, *Acta Math.* , Vol.119, no.1, 147-171, 1967.
 3. Malliavin, P., Stochastic calculus of variations and hypoelliptic operators, *Proc. Intern. Symp. Stoch. Diff. Equations* , (Kyoto-1976), 195—263, Wiley, New York-Chichester-Brisbane, 1978.
 4. Bismut, J.-M., The Atiyah-Singer theorems: a probabilistic approach I – the index theorem, *J. Funct. Anal.* , Vol.57, 56—98, 1984.
 5. Bismut, J.-M., The Atiyah-Singer theorems: a probabilistic approach II – the Lefschetz fixed point formulas, *J. Funct. Anal.* , Vol.57, 329—348, 1984.
 6. Hairer, M. and Mattingly, J., Ergodicity of the 2D Navier-Stokes equation with degenerate stochastic forcing, *Ann. Math.* , Vol.164, no.3, 993—1032, 2006.
192. Free energy universality of spherical spin glasses
191. Phase Transitions in Multidimensional Long-Range Random Field Ising Models
190. Hypercontractivity on HDX II: Symmetrization and q-Norms (Bourgain’s symmetrization theorem)
189. Error Bounds for Learning Fourier Linear Operators
188. Large sample properties of partitioning-based series estimators

187. Fluctuation of free energy for the mean-field Ghatak-Sherrington Model; main refs: F.Comets and J.Neuveu. The Sherrington-Kirkpatrick model of spin glasses and stochastic calculus: the high temperature case; On the stochastic calculus method for spins systems
186. Convergence of unadjusted langevin in high dimensions: delocalization of bias
185. Non-convex matrix sensing: Breaking the quadratic rank barrier in the sample complexity
184. Plug-in estimation of Schrödinger bridges (Jonathan Niles-Weed)
183. Dimension-free uniform concentration bound for logistic regression
182. The Reverse Littlewood–Offord problem of Erdős
181. Finite sample expansions and risk bounds in high-dimensional SLS models
180. Rate of convergence of the smoothed empirical Wasserstein distance
179. 18.157: Introduction to Microlocal Analysis by Richard Melrose (MIT)
178. Mobius inversion and the bootstrap (Florian Schafer)
177. Sharp high-dimensional central limit theorems for log-concave distributions (using stochastic localization and KLS); High-dimensional central limit theorems by Stein’s method
176. Kriging Prediction with Isotropic Matérn Correlations: Robustness and Experimental Designs
175. Error Estimates for Spectral Convergence of the Graph Laplacian on Random Geometric Graphs Toward the Laplace–Beltrami Operator
174. Minimax Rates for Conditional Density Estimation via Empirical Entropy
173. Consistent estimates of deformed isotropic gaussian random fields on the plane (Sourav Chatterjee)
172. Operator Learning Using Random Features: A Tool for Scientific Computing
171. Covariance’s loss is privacy’s gain: Computationally efficient, private and accurate synthetic data [10], Optimal minimization of the covariance loss [26]; Covariance loss, Szemerédi regularity, and differential privacy [9]; randomized rounding.
170. “Spatial Field” by David Bolin
169. “Finding structure with randomness: Probabilistic algorithms for constructing approximate matrix decompositions.”
168. “Characterizations of Replica-Symmetry in Mean-Field Spin Glasses”
167. “Koopman operator learning: Sharp spectral rates and spurious eigenvalues”
166. “Asymptotic mutual information in quadratic estimation problems over compact groups”
165. “Minimax Rates for Conditional Density Estimation via Empirical Entropy”
164. Saint-Flour 2024 “Lectures on Coulomb and Riesz gases” by Sylvia Serfaty [41].
163. CAVI for log-concave measures [2]
162. “Learning Gaussian Mixtures Using the Wasserstein-Fisher-Rao Gradient Flow”
161. Gaussian approximations: [48] and “Komlós–major–tusnányi approximation under dependence”
160. “Random fields and the geometry of wiener space”
159. M. E. J. Newman, “The structure and function of complex networks” “Networks”

158. “Gaussian free fields for mathematicians” “Thick points of the gaussian free field”
157. “From Gauss to Kolmogorov: Localized measures of complexity for ellipses”
156. “De Finetti’s theorem and related results for infinite weighted exchangeable sequences”
155. A CLT for regularized sample covariance matrices [1]
154. Talagrand’s original paper “Majorizing measures: the generic chaining”
153. Wasserstein distance, Fourier series and applications; “A simple Fourier analytic proof of the AKT (Ajtai–Komlós–Tusnády) optimal matching theorem ” (and its rich connection with Wasserstein metric, heat kernel smoothing and generic chaining) “A PDE approach to a 2-dimensional matching problem.” “Tight bounds for minimax grid matching with applications to the average case analysis of algorithms ” “matching problem in Talagrand’s book” “Transport and Interface: An Uncertainty Principle for the Wasserstein Distance” “On the rate of convergence of empirical measures in ∞ -transportation distance”
152. “Nonparametric estimation for interacting particle systems: McKean–Vlasov models” “On nonparametric estimation of the interaction function in particle system models”
151. BBP phase transition [3]
150. Complexity of random smooth functions on the high-dimensional sphere, Euler characteristics for Gaussian fields on manifolds
149. The number of critical points of a Gaussian field: finiteness of moments (Kergin interpolation/related to Hermite integral formula); Spectral central limit theorem for additive functionals of isotropic and stationary gaussian fields; “Estimation of expected euler characteristic curves of nonstationary smooth random fields” THE KAC-RICE FORMULA AND THE NUMBER OF CRITICAL POINTS OF RANDOM FUNCTIONS
148. “Smooth Gaussian fields and percolation” [6] “On excursion sets, tube formulas and maxima of random fields” “Excursion sets of three classes of stable random fields”
147. The book “random fields and geometry” and the book “Level sets and extrema of random processes and fields” A survey “Smooth Gaussian fields and percolation”
146. David Pollard’s books and papers.
145. “Nonparametric Shape-Restricted Regression”
144. “Cleaning large correlation matrices: Tools from Random Matrix Theory”
143. “Optimal Estimation of Gaussian DAG Models”
142. “Fisher-Rao gradient flow: geodesic convexity and functional inequalities”
141. I-Divergence Geometry of Probability Distributions and Minimization Problems [19], I-projection (information) and M-projection (moment)
140. “Eigenvector overlaps in large sample covariance matrices and nonlinear shrinkage estimators”
139. “Matrix perturbation bound via contour bootstrapping” by Van Vu
138. “Nonparametric Estimation of Ordinary Differential Equations: Snake and Stubble” “Lower Bounds for Nonparametric Estimation of Ordinary Differential Equations”
137. “Minimax estimation of functionals in sparse vector model with correlated observations” by Alexandre B. Tsybakov
136. “Exact bounds for some quadratic empirical processes with applications” by Qiyang Han

135. “Bernstein-von Mises theorems for time evolution equations” by Richard Nickl
134. “Restricted Strong Convexity Implies Weak Submodularity”
133. “Some conditional FKG inequalities for Markov chains and random processes”
132. “Entropy factorization via curvature”
131. “Concentration and moment inequalities for heavy-tailed random matrices”
130. “Multiscale methods for shape constraints in deconvolution: confidence statements for qualitative features”
129. Chatterjee’s variance lower bound paper, how does it relate to uncertainty principle and Fourier analysis?
128. “Weak Poincaré Inequalities in the Absence of Spectral Gaps”
127. “A short note on the comparison of interpolation widths, entropy numbers, and Kolmogorov widths” [42]
126. [Vecchia approximation](#): [28] “Asymptotic properties of Vecchia approximation for Gaussian processes” [27]
125. “Estimation in inverse problems and second-generation wavelets”
124. “Estimating normalizing constants for log-concave distributions: algorithms and lower bounds” “Convergence rates for non-log-concave sampling and log-partition estimation”
123. “Stochastic proof of the sharp symmetrized Talagrand inequality”
122. “Optimal rates for regularization of statistical inverse learning problems” [8]
121. “Sampling from convex sets with a cold start using multiscale decompositions”
120. A review on wavelets books [7]
119. “The strong data processing inequality under the heat flow” by Boaz Klartag
118. “Sampling from the Random Linear Model via Stochastic Localization Up to the AMP Threshold” by Jingbo Liu
117. “Multiwavelet-based operator learning for differential equations” [24]
116. Related to scales and majorizing measure theorem: “On a conjecture of talagrand on selector processes and a consequence on positive empirical processes” [35]
115. “Krylov Methods are (nearly) Optimal for Low-Rank Approximation” [5] [4]
114. “Nonparametric regression using deep neural networks with ReLU activation function” [40]
113. “On the Representation of Operators in Bases of Compactly Supported Wavelets”
112. Yuansi Chen’s course “Diffusion Models, Sampling and Stochastic Localization”
“<https://metaphor.ethz.ch/x/2024/fs/401-4634-24L/>”
111. “On the Complexity of Learning Sparse Functions with Statistical and Gradient Queries”
110. “A Bayesian approach with Gaussian priors to the inverse problem of source identification in elliptic PDEs”
109. “Learning linear operators: Infinite-dimensional regression as a well-behaved non-compact inverse problem”

108. “On posterior consistency of data assimilation with Gaussian process priors: the 2D Navier-Stokes equations” by Richard Nickl
107. “Gaussian process regression with log-linear scaling for common non-stationary kernels” (Michael Lindsey)
106. “Minimax optimal rates of estimation in high dimensional additive models” [47]
105. “Optimal errors and phase transitions in high-dimensional generalized linear models”
104. “Learning Optimal Filters Using Variational Inference” learning wavelet filters correspond to CNN.
103. Precision matrix estimation under the horseshoe-like prior–penalty dual
102. Statistical Inference for Bures-Wasserstein Flows
101. “High-probability minimax lower bounds”
100. Koopman operator: [17, 11, 46, 32] J. Nathan Kutz’s work
99. “Recent Advances in Algorithmic High-Dimensional Robust Statistics”
98. “Gaussian processes and kernel methods: A review on connections and equivalences”
97. “Reproducing kernel Hilbert spaces of Gaussian priors”
96. “Universality of Approximate Message Passing algorithms and tensor networks”
95. “Adaptive wavelet estimation: a block thresholding and oracle inequality approach” (Blockwise James-Stein)
94. “Isoperimetric inequalities in high-dimensional convex sets” (lecture notes on recent progress of KLS), “ON OPTIMAL TRANSPORT MAPS BETWEEN $1/d$ -CONCAVE DENSITIES”
93. “Locally Stationary Distributions: A Framework for Analyzing Slow-Mixing Markov Chains”
92. “Replicability in High Dimensional Statistics”
91. “Ellipsoid fitting up to constant via empirical covariance estimation”
90. “Selected topics on robust statistical learning theory”
89. “On the mathematical foundations of learning” [20]
88. David L. Donoho: “High-dimensional data analysis: the curses and blessings of dimensionality”
87. “Spin glass phase at zero temperature in the Edwards–Anderson model”
86. “Computational Complexity of Statistical Inference”, <https://www.birs.ca/events/2024/5-day-workshops/24w5214/videos>
85. A book: “Generalization Bounds: Perspectives from Information Theory and PAC-Bayes”
84. A survey in 2019, “User-Friendly Covariance Estimation for Heavy-Tailed Distributions”
83. Mean estimation and regression under heavy-tailed distributions: A survey (Lugosi, Mendelson, Foundations of Computational Mathematics)
82. The Convex Geometry of Inverse Problems
81. Ismaël Castillo’s Saint-Flour lecture notes (2023) on Bayesian nonparametric statistics
80. PAC Bayesian approach, A very interesting paper: “Dimension-free bounds for sums of independent matrices and simple tensors via the variational principle” PAC-Bayes: Probably Approximately Correct

- 79. The dynamical method for SK model [18], Plefka's expansion [36]
- 78. Chao's variance estimation problem: [12]
- 77. Numerical Homogenization by Localized Orthogonal Decomposition (Lecture 1-3) by Daniel Peterseim (Youtube)
- 76. [A series of papers about sparse Cholesky factorization by Houman Owhadi and Florian T.Schäfer.](#)
- 75. [Gaussian Markov Random Fields: Theory and Applications](#)
- 74. [An explicit link between Gaussian fields and Gaussian Markov random fields: the SPDE approach. \[31, 30\]](#)
- 73. High dimensional statistics: Chapter 7, Sparse linear models in high dimensions; Chapter 9, Decomposability and restricted strong convexity; [Chapter 11, Graphical models for high-dimensional data](#)
- 72. Nonparametric statistics
- 71. Recent progress on TAP free energy and mean field approximation [29, 38, 37, 15, 14, 13]
- 70. Foundations of *quantization* for probability distributions: [22, 21, 34, 45]
- 69. [Permutation entropy: a natural complexity measure for time series, Christoph Bandt, Bernd Pompe, 2002](#)
- 68. [Ensemble samplers with affine invariance, Jonathan Goodman, Jonathan Weare, 2010](#)
- 67. [Most tensor problems are NP-hard, Christopher J Hillar, Lek-Heng Lim, 2013](#)
- 66. [Singular values and eigenvalues of tensors: a variational approach, Lek-Heng Lim, 2005](#)
- 65. [Tensor rank and the ill-posedness of the best low-rank approximation problem, Vin De Silva, Lek-Heng Lim, 2008](#)
- 64. [Fast discrete curvelet transforms, Emmanuel Candes, Laurent Demanet, David Donoho, Lexing Ying, 2006](#)
- 63. [Synchrosqueezed wavelet transforms: An empirical mode decomposition-like tool, Ingrid Daubechies, Jianfeng Lu, Hau-Tieng Wu, 2011](#)
- 62. [Inverse problems: a Bayesian perspective, Andrew Stuart, 2010](#)
- 61. [Fourier neural operator for parametric partial differential equations, Zongyi Li, Nikola Kovachki, Kamyar Azizzadenesheli, Burigede Liu, Kaushik Bhattacharya, Andrew Stuart, Anima Anandkumar, 2020](#)
- 60. [String method for the study of rare events, E Weinan, Weiqing Ren, Eric Vanden-Eijnden 2002](#)
- 59. [Bayesian computation via the Gibbs sampler and related Markov chain Monte Carlo methods, Adrian FM Smith, Gareth O Roberts, 1993](#)
- 58. [Weak convergence and optimal scaling of random walk Metropolis algorithms, Gareth O Roberts, Andrew Gelman, Walter R Gilks, 1997](#)
- 57. [Exponential convergence of Langevin distributions and their discrete approximations, Gareth O Roberts, Richard L Tweedie, 1996](#)
- 56. [Optimal scaling for various Metropolis-Hastings algorithms, Gareth O Roberts, Jeffrey S Rosenthal, 2001](#)
- 55. [Efficient metropolis jumping rules, A Gelman, G Roberts, W Gilks, 1996](#)

54. [Examples of adaptive MCMC](#), Gareth O Roberts, Jeffrey S Rosenthal, 2009
53. [The pseudo-marginal approach for efficient Monte Carlo computations](#), Christophe Andrieu, Gareth O Roberts, 2009
52. [General state space Markov chains and MCMC algorithms](#), Gareth O Roberts, Jeffrey S Rosenthal, 2004
51. [Optimal scaling of discrete approximations to Langevin diffusions](#), Gareth O Roberts, Jeffrey S Rosenthal, 1998
50. [MCMC methods for functions: modifying old algorithms to make them faster](#), Simon L Cotter, Gareth O Roberts, Andrew M Stuart, David White, 2013
49. [Solving high-dimensional partial differential equations using deep learning](#), Jiequn Han, Arnulf Jentzen, Weinan E, 2018
48. [Introduction to the non-asymptotic analysis of random matrices](#), Roman Vershynin, 2012
47. [Hanson-Wright inequality and sub-Gaussian concentration](#), Mark Rudelson, Roman Vershynin, 2013
46. [A randomized Kaczmarz algorithm with exponential convergence](#), Thomas Strohmer, Roman Vershynin, 2009
45. [On sparse reconstruction from Fourier and Gaussian measurements](#), Mark Rudelson, Roman Vershynin, 2008
44. [Finding structure with randomness: Probabilistic algorithms for constructing approximate matrix decompositions](#), Nathan Halko, Per-Gunnar Martinsson, Joel A Tropp, 2011
43. [Signal recovery from random measurements via orthogonal matching pursuit](#), Joel A Tropp, Anna C Gilbert
42. [Computational methods for sparse solution of linear inverse problems](#), Joel A Tropp, Stephen J Wright
41. [Towards a mathematical theory of super-resolution](#), Emmanuel J Candès, Carlos Fernandez-Granda, 2014
40. [A differential equation for modeling Nesterov's accelerated gradient method: Theory and insights](#), Weijie Su, Stephen Boyd, Emmanuel J Candes, 2016
39. [Robust principal component analysis?](#), Emmanuel J Candès, Xiaodong Li, Yi Ma, John Wright, 2011
38. [Survey of multifidelity methods in uncertainty propagation, inference, and optimization](#), Benjamin Peherstorfer, Karen Willcox, Max Gunzburger, 2018
37. [Balanced model reduction via the proper orthogonal decomposition](#), Karen Willcox, Jaime Peraire, 2002
36. [The heterogenous multiscale methods](#), E Weinan, Bjorn Engquist, 2003
35. [Absorbing boundary conditions for the numerical simulation of waves](#), Bjorn Engquist, Andrew Majda, 1977
34. [Level set methods and dynamic implicit surfaces](#), Stanley Osher, Ronald Fedkiw, Krzysztof Piechor, 2004
33. [Nonlocal operators with applications to image processing](#), Guy Gilboa, Stanley Osher, 2009
32. [A fast algorithm for particle simulations](#), Leslie Greengard, Vladimir Rokhlin, 1987
31. [Fast direct methods for Gaussian processes](#), Sivaram Ambikasaran, Daniel Foreman-Mackey, Leslie Greengard, David W Hogg, Michael O'Neil, 2015

30. [The fast Gauss transform](#), Leslie Greengard, John Strain, 1991
29. [Fast Fourier transforms for nonequispaced data](#), Alok Dutt, Vladimir Rokhlin, 1993
28. [Fast wavelet transforms and numerical algorithms I](#), Gregory Beylkin, Ronald Coifman, Vladimir Rokhlin, 1991
27. [Rapid solution of integral equations of classical potential theory](#), Vladimir Rokhlin, 1985
26. [Diffusion maps](#), Ronald R Coifman, Stéphane Lafon, 2006
25. [Geometric diffusions as a tool for harmonic analysis and structure definition of data: Diffusion maps](#), Ronald R Coifman, Stéphane Lafon, Ann B Lee, Mauro Maggioni, Boaz Nadler, Frederick Warner, Steven W Zucker, 2005
24. [Multiscale methods: averaging and homogenization](#), Grigoris Pavliotis, Andrew Stuart, 2008
23. [Dynamical systems and numerical analysis](#), Andrew M Stuart, Anthony R Humphries, 1998
22. [Entropy-based algorithms for best basis selection](#), Ronald R Coifman, M Victor Wickerhauser, 1992
21. [The fast multipole method for the wave equation: A pedestrian prescription](#), Ronald Coifman, Vladimir Rokhlin, Stephen Wandzura, 2002
20. [Constructive approximation](#), Ronald A DeVore, George G Lorentz, 1993
19. [Nonlinear approximation](#), Ronald A DeVore, 1998
18. [Compressed sensing and best \$k\$ -term approximation](#), Albert Cohen, Wolfgang Dahmen, Ronald DeVore, 2009
17. [A simple proof of the restricted isometry property for random matrices](#), Richard Baraniuk, Mark Davenport, Ronald DeVore, Michael Wakin, 2008
16. [Iteratively reweighted least squares minimization for sparse recovery](#), Ingrid Daubechies, Ronald DeVore, Massimo Fornasier, C Sinan Güntürk, 2010
15. [Biorthogonal bases of compactly supported wavelets](#), Albert Cohen, Ingrid Daubechies, J-C Feauveau, 1992
14. [Numerical analysis of wavelet methods](#), Albert Cohen, 2003
13. [Mathematical foundations of infinite-dimensional statistical models](#), Evarist Giné, Richard Nickl, 2021
12. [Asymptotic statistics](#), Aad W Van der Vaart, 2000
11. [Weak Convergence and Empirical Processes: With Applications to Statistics](#), Aad W Van Der Vaart, Jon A Wellner, 1996
10. [Fundamentals of nonparametric Bayesian inference](#), Subhashis Ghosal, Aad W Van der Vaart, 2017
9. [Convergence rates of posterior distributions](#), Subhashis Ghosal, Jayanta K Ghosh, Aad W Van Der Vaart, 2000
8. [On profile likelihood](#), Susan A Murphy, Aad W Van der Vaart, 2000
7. [Optimal transport: old and new](#), C Villani, 2009
6. [The variational formulation of the Fokker–Planck equation](#), Richard Jordan, David Kinderlehrer, and Felix Otto, 1998
5. [An introduction to variational inequalities and their applications](#), David Kinderlehrer, Guido Stampacchia, 2000

4. [Generalization of an inequality by Talagrand and links with the logarithmic Sobolev inequality](#), F. Otto, C. Villani, 2000
3. [Probability in Banach Spaces: isoperimetry and processes](#), Michel Ledoux, Michel Talagrand, 1991
2. [Concentration of measure and isoperimetric inequalities in product spaces](#), Michel Talagrand, 1995
1. [Collective dynamics of 'small-world' networks](#), Duncan J Watts, Steven H Strogatz, 1998

2 References

2.1 Learning dynamics

Data assimilation is primarily about inferring states from data using a dynamical model, whereas learning dynamics from data is about inferring the dynamical model itself from data.

A Tutorial on the Non-Asymptotic Theory of System Identification
 Learning Without Mixing: Towards A Sharp Analysis of Linear System Identification
 Sample Complexity Lower Bounds for Linear System Identification
 Spectral Filtering for General Linear Dynamical Systems

2.2 Learning theory

Statistical learning theory:

Sumio Watanabe, Algebraic geometry and statistical learning theory, “Singular Learning Theory”, and “My Criticism of Singular Learning Theory”
 Computational learning theory, Avi’s book

2.3 Operator theory

Dynamics of linear operators

Operator Theory (Barry Simon)
 Schrödinger Operators: With Application to Quantum Mechanics and Global Geometry
 Interpolation of Operators, Bennett and Sharpley
 Schrödinger Operators and their Spectra, Vorlesungsskript Wintersemester 2017/2018 Priv.-Doz. Dr. Martin Kohlmann
 The Theory of Schrödinger Operators: What’s It All About?
 M. Reed, B. Simon: Methods of Modern Mathematical Physics. I. Functional Analysis. Revised and enlarged edition. Academic Press, New York 1980 [RS-II]
 M. Reed, B. Simon: Methods of Modern Mathematical Physics. II. Fourier Analysis, Self-Adjointness. Academic Press, New York 1975 [RS-III]
 M. Reed, B. Simon: Methods of Modern Mathematical Physics. III. Scattering Theory. Academic Press, New York 1979 [RS-IV]
 M. Reed, B. Simon: Methods of Modern Mathematical Physics. IV. Analysis of Operators. Academic Press, New York 1978
 Fifty Years of the Spectral Theory of Schrodinger Operators - B. Simon - 2/24/2019, Youtube
 “D-module” “Microlocal analysis”
 Brief History of Math
<https://yauc.seu.edu.cn/2020/0820/c27551a342885/page.psp>

2.4 Dynamical systems

- Introduction to Dynamical Systems, MICHAEL BRIN & GARRETT STUCK
- Dynamics of linear operators
- Approximation of Large-Scale Dynamical Systems, Athanasios C. Antoulas
- Consistency of maximum likelihood estimation for some dynamical systems, AoS 2015
- Statistical inference for dynamical systems: A review, Statistics Surveys 2015

- [Research Program: Theory of Learning in Dynamical Systems](#)
- Toeplitz Based Spectral Methods For Data-Driven Dynamical Systems
- Empirical risk minimization and complexity of dynamical models
- Single Trajectory Nonparametric Learning of Nonlinear Dynamics
- [Lyapunov Exponents, Entropy And Mixing For Diperna-Lions Flows](#)

2.5 Quantum statistics

- Asymptotic Inference in a Stationary Quantum Time Series, 2025
 Holevo Alexander's books: Probabilistic and statistical aspects of quantum theory 2011
 Statistical structure of quantum theory 2001
 Statistical decision theory for quantum systems 1973
 Local Asymptotic Normality in Quantum Statistics, CMP 2007
 Quantum statistical inference, Statistical Science, 1993
 On quantum statistical inference (with discussion), JRSSB, 2003
 Asymptotic theory of quantum statistical inference: selected papers, book, 2005
 Learning quantum states of continuous variable systems
 Efficient tomography of a quantum many-body system
 A survey on the complexity of learning quantum states
 Estimating the Spectrum of a Density Operator 2001
 Michael Nussbaum, Yazhen Wang's works
 Optimal large-scale quantum state tomography with Pauli measurements, 2016 Annals of Statistics
 Quantum science and quantum technology. Statist. Sci., 35(1):51–74, 2020.

References

- [1] Greg W Anderson and Ofer Zeitouni. A clt for regularized sample covariance matrices. *The Annals of Statistics*, pages 2553–2576, 2008.
- [2] Manuel Arnese and Daniel Lacker. Convergence of coordinate ascent variational inference for log-concave measures via optimal transport. *arXiv preprint arXiv:2404.08792*, 2024.
- [3] Gérard Ben Arous and J Baik. Phase transition of the largest eigenvalue for nonnull complex sample covariance matrices. *Annals of probability: An official journal of the Institute of Mathematical Statistics*, 33(5):1643–1697, 2005.
- [4] Ainesh Bakshi, Kenneth L Clarkson, and David P Woodruff. Low-rank approximation with 1/3 matrix-vector products. In *Proceedings of the 54th Annual ACM SIGACT Symposium on Theory of Computing*, pages 1130–1143, 2022.
- [5] Ainesh Bakshi and Shyam Narayanan. Krylov methods are (nearly) optimal for low-rank approximation. In *2023 IEEE 64th Annual Symposium on Foundations of Computer Science (FOCS)*, pages 2093–2101. IEEE, 2023.
- [6] Dmitry Beliaev. Smooth gaussian fields and percolation. *Probability Surveys*, 20:897–937, 2023.
- [7] John J Benedetto. Featured review: Ten books on wavelets, 2000.
- [8] Gilles Blanchard and Nicole Mücke. Optimal rates for regularization of statistical inverse learning problems. *Foundations of Computational Mathematics*, 18(4):971–1013, 2018.
- [9] March Boedihardjo, Thomas Strohmer, and Roman Vershynin. Covariance loss, szemerédi regularity, and differential privacy. *arXiv preprint arXiv:2301.02705*, 2023.
- [10] March Boedihardjo, Thomas Strohmer, and Roman Vershynin. Covariance's loss is privacy's gain: Computationally efficient, private and accurate synthetic data. *Foundations of Computational Mathematics*, 24(1):179–226, 2024.

- [11] Steven L Brunton, Marko Budišić, Eurika Kaiser, and J Nathan Kutz. Modern koopman theory for dynamical systems. *SIAM Review*, 64(2):229–340, 2022.
- [12] Alexandra Carpentier, Sylvain Delattre, Etienne Roquain, and Nicolas Verzelen. Estimating minimum effect with outlier selection. *Annals of Statistics*, 49(1):272–294, 2021.
- [13] Michael Celentano. Sudakov-fernique post-amp, and a new proof of the local convexity of the tap free energy. *arXiv preprint arXiv:2208.09550*, 2022.
- [14] Michael Celentano, Zhou Fan, Licong Lin, and Song Mei. Mean-field variational inference with the tap free energy: Geometric and statistical properties in linear models. *arXiv preprint arXiv:2311.08442*, 2023.
- [15] Michael Celentano, Zhou Fan, and Song Mei. Local convexity of the tap free energy and amp convergence for z 2-synchronization. *The Annals of Statistics*, 51(2):519–546, 2023.
- [16] Victor Chernozhukov, Denis Chetverikov, and Kengo Kato. Comparison and anti-concentration bounds for maxima of gaussian random vectors. *Probability Theory and Related Fields*, 162:47–70, 2015.
- [17] Matthew J Colbrook and Alex Townsend. Rigorous data-driven computation of spectral properties of koopman operators for dynamical systems. *Communications on Pure and Applied Mathematics*, 77(1):221–283, 2024.
- [18] Francis Comets and Jacques Neveu. The sherrington-kirkpatrick model of spin glasses and stochastic calculus: the high temperature case. *Communications in Mathematical Physics*, 166:549–564, 1995.
- [19] Imre Csiszár. I-divergence geometry of probability distributions and minimization problems. *The annals of probability*, pages 146–158, 1975.
- [20] Felipe Cucker and Steve Smale. On the mathematical foundations of learning. *Bulletin of the American mathematical society*, 39(1):1–49, 2002.
- [21] Qiang Du, Vance Faber, and Max Gunzburger. Centroidal voronoi tessellations: Applications and algorithms. *SIAM review*, 41(4):637–676, 1999.
- [22] Siegfried Graf and Harald Luschgy. *Foundations of quantization for probability distributions*. Springer, 2007.
- [23] David Gross, Yi-Kai Liu, Steven T Flammia, Stephen Becker, and Jens Eisert. Quantum state tomography via compressed sensing. *Physical review letters*, 105(15):150401, 2010.
- [24] Gaurav Gupta, Xiongye Xiao, and Paul Bogdan. Multiwavelet-based operator learning for differential equations. *Advances in neural information processing systems*, 34:24048–24062, 2021.
- [25] Aparna Gupte, Neekon Vafa, and Vinod Vaikuntanathan. Sparse linear regression and lattice problems. *arXiv preprint arXiv:2402.14645*, 2024.
- [26] Vishesh Jain, Ashwin Sah, and Mehtaab Sawhney. Optimal minimization of the covariance loss. *IEEE Transactions on Information Theory*, 69(2):813–818, 2022.
- [27] Myeongjong Kang, Florian Schäfer, Joseph Guinness, and Matthias Katzfuss. Asymptotic properties of vecchia approximation for gaussian processes. *arXiv preprint arXiv:2401.15813*, 2024.
- [28] Matthias Katzfuss and Joseph Guinness. A general framework for vecchia approximations of gaussian processes. *Statistical Science*, 36(1), 2021.
- [29] Florent Krzakala, Andre Manoel, Eric W Tramel, and Lenka Zdeborová. Variational free energies for compressed sensing. In *2014 IEEE International Symposium on Information Theory*, pages 1499–1503. IEEE, 2014.

- [30] Finn Lindgren, David Bolin, and Håvard Rue. The spde approach for gaussian and non-gaussian fields: 10 years and still running. *Spatial Statistics*, 50:100599, 2022.
- [31] Finn Lindgren, Håvard Rue, and Johan Lindström. An explicit link between gaussian fields and gaussian markov random fields: the stochastic partial differential equation approach. *Journal of the Royal Statistical Society Series B: Statistical Methodology*, 73(4):423–498, 2011.
- [32] Liam Llamazares-Elias, Samir Llamazares-Elias, Jonas Latz, and Stefan Klus. Data-driven approximation of koopman operators and generators: Convergence rates and error bounds. *arXiv preprint arXiv:2405.00539*, 2024.
- [33] Stephen J Montgomery-Smith. The distribution of rademacher sums. *Proceedings of the American Mathematical Society*, 109(2):517–522, 1990.
- [34] Gilles Pagès. A space quantization method for numerical integration. *Journal of computational and applied mathematics*, 89(1):1–38, 1998.
- [35] Jinyoung Park and Huy Tuan Pham. On a conjecture of talagrand on selector processes and a consequence on positive empirical processes. *Annals of Mathematics*, 199(3):1293–1321, 2024.
- [36] Timm Plefka. Convergence condition of the tap equation for the infinite-ranged ising spin glass model. *Journal of Physics A: Mathematical and general*, 15(6):1971, 1982.
- [37] Jiaye Qiu. Sub-optimality of the naive mean field approximation for proportional high-dimensional linear regression. *arXiv preprint arXiv:2310.09931*, 2023.
- [38] Jiaye Qiu and Subhabrata Sen. The tap free energy for high-dimensional linear regression. *The Annals of Applied Probability*, 33(4):2643–2680, 2023.
- [39] Christian Rieger and Holger Wendland. On the approximability and curse of dimensionality of certain classes of high-dimensional functions. *SIAM Journal on Numerical Analysis*, 62(2):842–871, 2024.
- [40] Johannes Schmidt-Hieber. Nonparametric regression using deep neural networks with relu activation function. *The Annals of Statistics*, 48(4), 2020.
- [41] Sylvia Serfaty. Lectures on coulomb and riesz gases. *arXiv preprint arXiv:2407.21194*, 2024.
- [42] Ingo Steinwart. A short note on the comparison of interpolation widths, entropy numbers, and kolmogorov widths. *Journal of Approximation Theory*, 215:13–27, 2017.
- [43] Aldo V Vecchia. Estimation and model identification for continuous spatial processes. *Journal of the Royal Statistical Society Series B: Statistical Methodology*, 50(2):297–312, 1988.
- [44] Roman Vershynin. *High-dimensional probability: An introduction with applications in data science*, volume 47. Cambridge university press, 2018.
- [45] Jonathan Weed and Francis Bach. Sharp asymptotic and finite-sample rates of convergence of empirical measures in wasserstein distance. *Bernoulli*, 25(4 A):2620–2648, 2019.
- [46] Matthew O Williams, Ioannis G Kevrekidis, and Clarence W Rowley. A data-driven approximation of the koopman operator: Extending dynamic mode decomposition. *Journal of Nonlinear Science*, 25:1307–1346, 2015.
- [47] MING YUAN and DING-XUAN ZHOU. Minimax optimal rates of estimation in high dimensional additive models. *The Annals of Statistics*, 44(6):2564–2593, 2016.
- [48] DANNA ZHANG and WEI BIAO WU. Gaussian approximation for high dimensional time series. *The Annals of Statistics*, 45(5):1895–1919, 2017.