Nonlinear systems with noise

21 – 25 September 2026, Münster

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Monday, 21 September 2026

M3, Monday 9:00 – 9:35

A forward-backward SDE for a long-range semilinear 2D stochastic heat equation

by Alex Dunlap

Duke University

Cosco, Cottini, and Donadini have recently studied the two-dimensional directed polymer model in an environment whose covariance function is given by the Riesz kernel. At subcritical noise strength, after an appropriate logarithmic attenuation, they derived an explicit limiting distribution for the one-point partition function, which turns out to be Gaussian with an explicit (nontrivial) variance. I will describe an extension of this work to the semilinear stochastic heat equation, in which case the limiting distribution is no longer Gaussian in general, but rather can be described in terms of the solution to a forward-backward SDE. The forward-backward SDE combines aspects of forward-backward SDEs derived for the 2D SHE with compactly-supported noise covariance by D–Gu and and for the higher-dimensional SHE with Riesz-kernel covariance by D–Hairer–Li. However, it is more complicated than both equations due to the effective variance of the equation seeing the noise contributions at many scales, as observed in the linear case by Cosco–Cottini–Donadini. This talk is based on joint work with Bryan Castillo.

M3, Monday 9:40 – 10:15

Invariant measures for open KPZ

by Yu Gu

University of Maryland

We study the open KPZ equation, a prototypical one-dimensional random growth model subject to boundary conditions. Using stochastic analytic tools, we show that a suitably resampled Brownian motion describes its long-time behavior. This is based on a joint work with Alex Dunlap and Tommaso Rosati.

M3, Monday 10:45 – 11:20

A PDE approach to the 2D Yang-Mills measure

by Ilya Chevyrev

SISSA

In this talk, I will describe a construction of a gauge field potential for the 2D Yang-Mills measure with optimal regularity. The method is inspired by classical Uhlenbeck compactness and involves solving for the Coulomb gauge. In the low regularity setting that we consider, this boils down to analysing a singular, geometric (group-valued), elliptic PDE. We develop a somewhat new solution theory for this equation based on implicit function theorem and regularity structures, which we believe could be of interest for other geometric SPDEs.
Joint work with Tom Klose and Abdulwahab Mohamed.

M3, Monday 11:25 – 12:00

Sharp rate of convergence to the KPZ equation

by Máté Gerencsér

TU Wien

One of the most common descriptions of solutions of singular SPDEs is their characterisation as the limit of solutions of renormalised smooth random PDEs. We quantify the speed of this convergence in the case of the KPZ equation. In particular, we show that the naive guess that the rate is given by the distance of the noise regularity from the endpoint regularity for well-posedness is not correct.

M3, Monday 14:00 – 14:35

A variational approach to the 2D Abelian Yang-Mills-Higgs measure

by Ajay Chandra
Purdue University

I will discuss a construction of the Abelian Yang-Mills-Higgs measure on the two dimensional torus using the Barashkov-Gubinelli variational approach. This is joint work with Nikolay Barashkov, Ilya Chevyrev, Andreas Koller, and Abdulwahab Mohamed.

M3, Monday 14:40 – 15:15

Title

by Patrícia Gonçalves
Instituto Superior Técnico

Abstract

M3, Monday 15:45 – 16:20

Uniqueness of the invariant measure for the Φ^4_2 dynamics in infinite volume

by Benoît Dagallier
CEREMADE

I will report on a joint work with Roland Bauerschmidt and Hendrik Weber where we prove uniqueness of invariant measures of the the φ^4_2 dynamics in infinite volume, as soon as the susceptibility of the finite volume φ^4_2 measure remains bounded. Invariant measures are known to be unique in finite volume and are given by the (finite volume) φ^4_2 field theory. In infinite volume uniqueness may fail, for instance due to phase transitions.

Uniqueness is proven by adapting, to the field-theory setting, the Holley-Stroock-Zegarlinski approach to uniqueness for statistical mechanics models. This approach is based on a volume-independent bound on the log-Sobolev constant of the associated dynamics which depends on the specifics of the model, together with crude, model-independent bounds. In the φ^4_2 case the bound on the log-Sobolev constant has been established. Substantial work is however required to adapt the other parts of the argument and I will give an overview of how this can be done.

M3, Monday 16:25 – 17:00

Nonequilibrium fluctuations for a gradient interacting particle system

by Claudio Landim
IMPA

We prove the fluctuations of the density field around the hydrodynamic limit of a gradient exclusion process. Joint work with S. Sethuraman.

Tuesday, 22 September 2026

M3, Tuesday 9:00 – 9:35

Title

by Julian Fischer
IST Austria

Abstract

M3, Tuesday 9:40 – 10:15

A stochastic homogeneization approach to supercritical SPDEs

by Guiseppe Cannizzaro
University of Warwick

In the present talk, we will present a novel approach to study the large-scale fluctuations of a class of stationary quasi-linear SPDEs at super-critical dimensions. In particular, we show that this class of SPDEs has Gaussian fluctuations and that the limit is given by a linear additive Stochastic Heat equation with renormalised coefficients. Our approach is based on a suitable two-scale expansion for the generator of our dynamics and extends classical stochastic homogeneization to the infinite-dimensional setting. It provides a more transparent characterisation of the macroscopic diffusivity in terms of microscopic observables and allows to treat a wider class of SPDEs thank previously possible.
Based on joint ongoing work with H. Giles (TU Vienna) and L. Gräfner (Warwick).

M3, Tuesday 10:45 – 11:20

On the chain rule for scalar-valued singular SPDEs

by Markus Tempelmayr
TU Wien

We consider the geometric stochastic heat equation and the framework of multi-index-based regularity structures, in this talk for simplicity in the scalar-valued case. In a setting where imposing small and large scale estimates of the model uniquely determine the counterterm, we show that this counterterm transforms according to the chain rule under composition with diffeomorphisms. The argument is purely analytical and follows the spirit of earlier work on multiindex-based regularity structures, by identifying the relevant infinitesimal generators which allow to linearize the problem. Joint work in progress with Lucas Broux and Felix Otto.

M3, Tuesday 11:25 – 12:00

From multi-indices to trees

by Felix Otto
MPI Leipzig

As Markus Tempelmayr explained in his talk, the intrinsic notion of a model automatically is geometric, i. e. equivariant under diffeomorphisms of the target. I'd like to be more specific in the setting of Bruned-Chandra-Hairer- Zambotti's work on the geometric stochastic heat equation, and compare our top-down and intrinsic approach with the bottom-up and extrinsic approach used in that paper. Our approach is intrinsic in the sense that the model is made to just parameterize the solution manifold. Its abstract model space, which is the space the counter term lives in, arises from the algebra of functionals on the space of non-linearities (the Christoffel symbol and the vector fields giving rise to the metric). Passing to an incremental description, the space of non-linearities is graded by homogeneity (k and l). Algebrizing functionals in terms of the (completed) symmetric tensor algebra, this naturally gives the abstract model space the structure of a direct sum over finite-dimensional spaces enumerated by multi-indices on homogeneities ($\beta(k)$ and $\beta(l)$)). The extrinsic approach is bottom up in the sense that it encodes a certain order of operations (inverting the heat operator, taking spatial derivatives, taking derivatives of the non-linearities, plugging in the noises, or one into the other). This order of these operations is kept track of by (decorated) trees. This approach is extrinsic in the sense that the model describes an ambient function space, not just the non-linear solution manifold. In this talk, I'd like to point out that, when elementary symmetries are taken into account, both arrive at the identical linear space for the counter term. This is part of joint work in progress with L. Broux and M. Tempelmayr.

M4, Tuesday 14:00 – 14:35

Hydrodynamic limit of the stochastic Burgers equation

by Nicolas Perkowski
FU Berlin and MPI Leipzig

We study the singular stochastic Burgers equation on a large torus, at stationarity perturbed by a slowly varying deterministic function. On large space-time scales, the solution is given by a stochastic Burgers equation with vanishing Laplacian and vanishing noise, which is a challenge for pathwise methods relying on the regularization of the Laplacian. By a combination of the entropy and relative entropy methods, we show that the hydrodynamic limit is the inviscid Burgers equation, up to its shock time. We can also slightly increase the strength of the noise, which leads to a lower bound $L^{4/3-}$ on the mixing time of the stochastic Burgers equation on a torus of size L. This is joint work with Abdulwahab Mohamed.

M4, Tuesday 14:40 – 15:15

Combinatorics and a priori estimates for rough S(P)DEs

by Lorenzo Zambotti
Sorbonne Université

Rough paths and regularity structures study pathwise S(P)DEs using local expansions. The associated remainders are usually estimated via analytic methods but one can also write them explicitly, and in fact there are many possible ways of expressing them. With Lorenzo Agabiti and Alberto Bonicelli we have found a particularly nice way of rearranging the terms in this sum, which allows to give seemingly optimal a priori bounds on the solution. The formula is however surprisingly difficult and involves several non-trivial combinatorial tools.

M4, Tuesday 15:45 – 16:05

Two-point motion in time-correlated stochastic velocity field

by Silvia Morlacchi
Università di Pisa

We numerically investigate the two-point motion of tracer particles advected by a time-correlated stochastic velocity field, a synthetic model for two-dimensional turbulence. In the case of a time delta-correlated stochastic field (Kraichnan model) the splitting phenomenon occurs: tracer particles having the same initial position separate in finite time.Although two-point motion in time-correlated Gaussian stochastic velocity field has been analytically investigated, to the best of our knowledge rigorous results on two-point motion are restricted to the frozen (in time) case, in which there is no splitting of trajectories. We investigate the time-correlated case, to understand if the splitting phenomenon still occurs. Based on ongoing work with Mario Maurelli.

M4, Tuesday 16:05 – 16:25

Critical stationary fluctuations of a reaction-diffusion model

by Luis Cardoso
IMPA

In this talk, we consider an interacting particle system in dimension 1 whose diffusive scaling limit is given by a reaction-diffusion equation. At criticality, we go beyond this scaling and investigate the system's fluctuations. Building on previous work on the dynamical case, we study the fluctuations with respect to the non-reversible invariant measure. We show that the global density, properly rescaled, exhibits non-Gaussian limiting behavior, characterized explicitly by a fourth-order exponential density. Furthermore, the density field acting on zero-mean spatial modes possesses strictly smaller, Gaussian fluctuations. Consequently, the rescaled spatial field completely projects onto the global density. This establishes a non-Gaussian fluctuation for the stationary state of a short-range system associated with the Φ^4 universality class. This is based on joint work with Landim and Tsunoda.

M4, Tuesday 16:30 – 16:50

From the Height Function to the KPZ Equation

by Hong Sheng Tan
Michigan State University

We consider a class of open exclusion processes with a fixed jump range. Under a suitable weak asymmetry assumption, we show that the corresponding height functions converge to the Cole–Hopf solution of the KPZ equation with Neumann boundary conditions. Our work generalizes the convergence result of Corwin and Shen (2016) for the simple exclusion process. One of the main challenges is the renormalization of the nonlinearity, which we will discuss. The talk is based on joint work with K. Matetski.

M4, Tuesday 16:50 – 17:10

Viscosity solutions for singular HJB equations

by Carlos Villanueva Mariz
FU Berlin

We introduce a notion of viscosity solution for Hamilton-Jacobi-Bellman equations of the form

$$\left(\partial_t + \tfrac{1}{2}\,\Delta + b\cdot\nabla\right) h(t,x) = -H(t,x,h(t,x),\nabla h(t,x)),$$

where b has regularity $\mathcal{C}^{-\alpha}$, with $\alpha \in \left(\frac{1}{2},\frac{2}{3}\right)$; this notion is related through Zvonkin's transform to classical viscosity theory. Using doubling-of-variables arguments we derive a priori gradient estimates, which cover Hamiltonians with slightly super-quadratic growth on ∇h.

Wednesday, 23 September 2026

M3, Wednesday 9:00 – 9:35

On the role of positivity preservation for high order approximations of the Dean–Kawasaki equation

by Ana Djurdjevac

University of Oxford

We study a spectral regularization of the Dean–Kawasaki equation and quantify how the failure of positivity preservation affects its weak approximation of the empirical measure of independent Brownian particles. For strictly positive initial densities, we prove superpolynomial weak convergence for smooth test functions, while for densities that may vanish we obtain weaker bounds and a lower bound showing that such convergence cannot hold in general. Numerical experiments illustrate the theoretical results. This is joint work with A. Damnjanović and N. Perkowski.

M3, Wednesday 9:40 – 10:15

Title

by Martin Hairer

EPFL and Imperial College London

Abstract

M3, Wednesday 10:45 – 11:20

Estimates on free-boundary propagation for solutions to stochastic porous-media equations

by Günther Grün

Friedrich-Alexander-Universität

We study the impact of noise on the expected propagation in time of the boundary of the spatial support of solutions to stochastic porous-media equations with nonlinear conservative noise, i.e. multiplicative noise inside a convective term. Starting from a recent result together with M. Sauerbrey on finite speed of propagation for kinetic solutions of such equations (for which existence and nonnegativity is known due to previous work of B. Fehrman and B. Gess), we formulate upper estimates on propagation rates. With respect to scaling, these estimates coincide for small times with the estimates known to be optimal in the deterministic setting. For large times, however, we observe a scaling transition in the stochastic case which gives strong indication that the presence of conservative noise terms enhances spreading significantly. For the proof, we rely on integral estimates and appropriate filtering techniques. This is a joint work with Joshua Utley, Friedrich-Alexander University Erlangen-Nuremberg.

M3, Wednesday 11:25 – 12:00

Some progress in rough sheets analysis

by Samy Tindel

Purdue University

Planar integration for irregular fields is notoriously cumbersome. The mixed differential terms showing up in two dimensions produce overlapping iterated integrals. Handling them has so far lead to an exhaustive combinatorial construction. The best known instance is the 36-element planar signature of Chouk and Gubinelli. In this this talk I will describe a route towards a smaller object.

I will start from what a 2-d signature already does as an algebraic structure. I will describe its two partial Chen relations and a shuffle over words and permutations. I will also briefly recall how the signature behaves as a feature map, through a texture classification experiment carried out with G. Lin and S. Zhang. I will then turn to the main result, obtained with Y. Hakiki: a change-of-variable formula for sheets with asymmetric Hölder regularity. The main application of this result will be fractional Brownian sheets with proper Hurst parameters. I will close with ongoing work with A. Chandra and L. Zambotti, aiming at a set of features carrying both a Chen relation and a shuffle. In this framework the iterated integrals above are described through pairs of rooted forests whose vertex sets need not coincide.

Thursday, 24 September 2026

M3, Thursday 9:00 – 9:35

The sinh-Gordon model

by Roland Bauerschmidt

Courant Institute

I will give an overview and report on progress on the sinh-Gordon model.

M3, Thursday 9:40 – 10:15

Ergodicity from divergence-free transport noise

by Benjamin Gess

TU Berlin and MPI Leipzig

We consider stochastic McKean–Vlasov equations whose deterministic dynamics can exhibit phase transitions and nonuniform equilibria. We establish that under suitable assumptions, sufficiently strong divergence-free transport noise makes the Dirac mass at the homogeneous density the unique invariant probability measure. The proof combines enhanced dissipation, local Eulerian stability through a negative top Lyapunov exponent, and global accessibility through mixing and a support theorem. Joint work with Rishabh S. Gvalani and Adrian Martini.

M3, Thursday 10:45 – 11:20

Global well-posedness for generalized parabolic anderson model on the whole plane

by Xiangchan Zhu
Chinese Academy of Sciences

For every $0<\kappa<\sqrt{5}-2$, we prove global existence for the two-dimensional generalized parabolic Anderson model on the whole plane $\mathbb{R}^2$ with nonlinearity $F\in C_b^2(\mathbb{R})$, driven by an enhanced noise (η,Ψ). The noise η has polynomially weighted spatial Besov–Hölder regularity $-1-\kappa$ and Ψ is the corresponding renormalized second-order object. If F'' is globally Lipschitz, the solution is unique. The proof combines a weight-compatible annular high–low decomposition with a paracontrolled transport representation. The final remainder is estimated simultaneously in a weighted L^∞ norm and in a higher-order weighted parabolic Hölder norm, using two strictly different polynomial weights. This weight gap absorbs the polynomial losses generated by the enhanced noise, the localization procedure, and the transport coefficient. Several refinements of earlier work allow the maximum-principle and Schauder estimates to yield a global a priori bound for a larger range of κ. Uniqueness is proved in a time-dependent exponentially weighted topology.

M3, Thursday 11:25-12:00

An SPDE-based proof on jointly invariant measures for KPZ/stochastic Burgers

by Ran Tao
MPI Leipzig

We develop an SPDE-based proof of the jointly invariant measures for the KPZ/stochastic Burgers equation in the periodic and full-space settings. In contrast to prior proofs that rely on the Cole–Hopf transform and integrable semi-discrete approximations to the coupled system (Groathouse–Rassoul-Agha–Seppäläinen–Sorensen; Corwin–Gu–Sorensen), our method works directly at the level of the coupled SPDEs, utilizing the established one-point invariant measures and time-reversal of energy solutions of KPZ equation. This is joint work with Alex Dunlap, Nicolas Perkowski, and Hendrik Weber.

M3, Thursday 14:00 – 14:35

The four-dimensional Anderson model as a critical SPDE

by Hao Shen
University of Chicago

We study the weakly coupled elliptic Anderson model with spatial white noise on the four-dimensional torus, which is a critical SPDE requiring renormalization at arbitrarily high orders. For sufficiently small coupling, we prove that the Green's function of the corresponding random Schrödinger operator, suitably centered and rescaled, converges to a centered Gaussian random field with explicit covariance. To prove this, we construct a renormalized parametrix truncated at order $|\log(\varepsilon)|$, and prove sharp high-order bounds for its remainder. A central ingredient is a multiscale analysis based on a new version of Hepp trees, combined with new estimates for summations over permutations. The methods developed here are intended as a first step toward a general theory for critical SPDEs with weak couplings. Based on joint work with Yu Deng.

M3, Thursday 14:40 – 15:15

A weak FBSDE construction of the sine-Gordon EQFT

by Sarah-Jean Meyer
University of Oxford

I will present a construction of the sine-Gordon Euclidean quantum field theory based on the continuous renormalization flow equation and a stochastic dynamics across scales described by a weak forward-backward SDE. This framework allows us to construct the finite-volume sine-Gordon measure in more singular regimes in a finite volume.
The resulting dynamics also provide a coupling between the sine-Gordon field and the Gaussian free field, through which several structural properties of the interacting measure can be established.

I will first explain the main ideas behind the approach and then present the results obtained for the sine-Gordon model.

M3, Thursday 15:45 – 16:05

Composite local observables of sine–Gordon via stochastic analysis

by Peter Paulovics
University of Oxford

We develop a framework for the rigorous description of general local composite observables in Euclidean quantum field theories. The approach is nonperturbative and combines renormalization group ideas with techniques of stochastic analysis. Via renormalization dictated by sufficiently precise approximate solution theory of corresponding flow equations, we construct various highly singular observables of the massive sine–Gordon model on the full space up to $\beta^2 < 6\pi$, including polynomials, derivatives and vertex fields. Applications of the approach include a simple, direct proof of smoothness of observable-inserted correlation functions, and verification that the constructed objects satisfy a version of the prefactorization algebra axioms adapted to our setting. Based on joint work with M. Gubinelli.

M3, Thursday 16:05 – 16:25

Derivation of stochastic Burgers on the line with a Dirichlet boundary condition at the origin

by Leander Schnee
FU Berlin

We analyze the *equilibrium fluctuations* of a Hamiltonian chain of oscillators on $\mathbb{Z}$ with an exponential potential, perturbed by a conservative, symmetric noise. Under the canonical *diffusive scaling* $t \mapsto t n^2$ and an interaction strength tuned by $n^{-1/2}$, the fluctuation field is known to converge to the *energy solution* of the stochastic Burgers equation (SBE) on the torus [1]. We introduce a *coupled moving heat bath* of strength $n^{-\delta}$ acting on the particle system. We prove that for $\delta \leq 1$ (the *strong-coupling regime*), the equilibrium fluctuation field converges to the *energy solution of the SBE with a Dirichlet boundary condition at zero*. We provide two distinct analytical characterizations of these boundary solutions, corresponding to different spaces of test functions. Conversely, for $\delta > 1$ (the *weak-coupling regime*), the heat bath becomes irrelevant in the scaling limit: the fluctuations converge to the standard SBE on the full line without any boundary condition, reproducing the full-line result of [2]. Our analysis thus reveals a sharp *critical scaling* in the coupling strength δ, which dictates the emergence - or absence - of a macroscopic boundary condition from the microscopic perturbation.
This is a joint work with Cédric Bernardin, Ana Djurdjevaca and Patrìcia Goncalves and can be found in [3].

[1] Ahmed, R., Bernardin, C., Goncalves, P., Simon, M., A microscopic derivation of coupled SPDE's with a KPZ flavor, Annales de l'Institut Henri Poincare Probabilites et Statistiques (2022), 58(2), 890–915.
[2] Goncalves, P., Jara, M., Nonlinear fluctuations of weakly asymmetric interacting particle systems, Archive for Rational Mechanics and Analysis (2014), 212(2), 597–644.
[3] Bernardin, C., Djurdjevac, A., Gonçalves, P. et al. Derivation of Stochastic Burgers on the Line with a Dirichlet Boundary Condition at the Origin. J Dyn Diff Equat (2026).

M3, Thursday 16:30 – 16:50

Fluctuations of a singular parabolic Anderson model

by Sotirios Kotitsas
EPFL

We consider the multiplicative heat equation

$$\frac{\Delta \boldsymbol{X}^{\beta}}{\partial t}(x,t) = \frac{\Delta_x}{2}\boldsymbol{X}^{\beta}(x,t) + \boldsymbol{X}^{\beta}(x,t)\cdot \beta\xi_0(x,t),$$

in $d \geq 3$, where $\beta > 0$ denotes the strength of the driving noise ξ_0. The latter is a Gaussian white-in-time noise with long-range spatial correlations, and approximates a singular noise that is white in time and spatially correlated according to the Riesz-type kernel $|x|^{-2}$. For this model, it is known that regularized solutions converge to a non-Gaussian measure-valued limit when the coupling constant of the noise is below a critical value. Up to this critical point, we establish the convergence rate of the regularized solutions, and we calculate the second limiting moment of the fluctuations. Based on joint work with Te-chunWang (EPFL) and Xue-Mei Li (EPFL).

M3, Thursday 16:50 – 17:10

A priori bounds for the generalized parabolic Anderson model in the full subcritical regime

by Felix Schwarzfischer
Universität Münster

We show a priori bounds for the generalized Parabolic Anderson Model $(\partial_t - \Delta)u = \sigma(u)\diamond\xi$ in finite volume in the full subcritical regime. The approach is based on the observation that, for constant initial data, the time interval over which the solution remains close to its initial condition can be chosen uniformly in the value of the initial condition. A comparison principle is then used to extend this estimate to general bounded initial data.

Friday, 25 September 2026

M3, Friday 9:00 – 9:35

Geometric locality of the Φ^4_3 field on a hypersurface

by Paweł Duch
EPFL

Consider the Φ^4_3 quantum field theory on a closed three-dimensional Riemannian manifold and restrict it to an embedded two-dimensional surface. I will explain that, although the law of the restricted field generally depends on the geometry of the entire ambient manifold, its negligible events depend only on the local geometric data along the surface. More precisely, two embeddings with the same induced metric and second fundamental form give rise to mutually absolutely continuous laws of the restricted fields. I will also explain how this locality statement is motivated by, and relates to, the Segal gluing axioms. The key idea of the proof is to combine parabolic stochastic quantisation with a coupling argument based on Girsanov's theorem.

M3, Friday 9:40 – 10:15

KPZ fluctuations of TASEP on a ring

by Konstantin Matetski
Michigan State University

The totally asymmetric simple exclusion process (TASEP) on a ring exhibits different types of fluctuations depending on how the ring size scales with time. When the ring is sufficiently large compared to the time scale, the fluctuations are described by the KPZ fixed point on the line. In the opposite regime, when the ring is small, the fluctuations are Gaussian. The most interesting regime occurs when the ring size is of the order of the 2/3-power of time, where a new periodic process describes the limiting fluctuations.

While the solution of TASEP on the line is relatively well understood, much less is known about its analogue on a ring. In joint work with Daniel Remenik, we developed a new solution method for TASEP on a ring, which is a sophisticated extension of the biorthogonalization method developed in our earlier work. We use this method to study the asymptotic fluctuations in the different regimes and, in particular, to identify the limiting processes in the KPZ and relaxation regimes.

M3, Friday 10:45 – 11:20

Dynamical classical-field limit of bosonic Gibbs states: Renormalized Hartree NLS correlations in 2D and 3D

by Rongchan Zhu
Beijing Institute of Technology

In this talk we derive the time-dependent correlation functions of the renormalized Hartree NLS equation on the torus $\mathbb{T}^d$, $d = 2, 3$, from the corresponding bosonic many-body Gibbs dynamics. In contrast with the 1D problem studied earlier by Fröhlich, Knowles, Schlein and Sohinger, in higher dimensions the scaled quantum particle number is not uniformly bounded and the relevant classical fields require Wick renormalization. Our proof combines convergence of the quantum generators in weighted Hilbert spaces with uniqueness for positive solutions of the limiting Liouville equation that are dominated by the Gibbs measure.

M3, Friday 11:25 – 12:00

Title

by Massimiliano Gubinelli
University of Oxford

Abstract