Dynamics Beyond Uniform Hyperbolicity

#dynamical systems #non-uniform hyperbolicity #chaos theory #complex dynamics #mathematical dynamics research

Explore the intricate world of dynamical systems that venture beyond the classical definition of uniform hyperbolicity. This deep dive uncovers the advanced mathematical theories and complex phenomena found in non-uniformly hyperbolic systems, offering critical insights into areas like chaos theory, ergodic theory, and the unpredictable evolution of real-world phenomena. Understand the cutting-edge research driving the field of mathematical dynamics.

Dynamics Beyond Uniform Hyperbolicity
Christian Bonatti; Lorenzo J. Díaz; Marcelo Viana (2005). Dynamics Beyond Uniform Hyperbolicity: A Global Geometric and Probabilistic Perspective. Springer... 52 KB (7,059 words) - 00:53, 10 March 2024
transfer, fluid dynamics, and special relativity. The basic hyperbolic functions are: hyperbolic sine "sinh" (/ˈsɪntʃ, ˈsɪnʃ, ˈhaɪpərbəlɪk ˈsaɪn/), hyperbolic cosine "cosh"... 29 KB (4,822 words) - 22:14, 16 January 2024
Winter Meeting in Toronto, 2009 International Workshop Dynamics Beyond Uniform Hyperbolicity at the Beijing International Center for Mathematical Research... 12 KB (977 words) - 15:50, 5 March 2024
Bonatti; Lorenzo J. Díaz; Marcelo Viana (30 March 2006), Dynamics Beyond Uniform Hyperbolicity: A Global Geometric and Probabilistic Perspective, Springer... 12 KB (1,118 words) - 16:21, 11 January 2024
(SRB) measures. 2) Pesin's greatest contribution to dynamics is creation of non-uniform hyperbolicity theory, which is commonly known as Pesin Theory. This... 10 KB (1,227 words) - 06:59, 22 April 2023
triangular prism. A right triangular prism may be both semiregular and uniform. The triangular prism can be used in constructing another polyhedron. Examples... 18 KB (1,513 words) - 21:14, 9 March 2024
Mathematicians (2010): Dynamics on geometrically finite hyperbolic manifolds with applications to Apollonian circle packings and beyond arXiv:1006.2590 with... 8 KB (635 words) - 18:49, 12 August 2023
LCSs (elliptic and parabolic) beyond the hyperbolic LCSs highlighted by FTLE ridges The local variational theory of hyperbolic LCSs builds on their original... 70 KB (10,166 words) - 12:15, 25 September 2023
maximum likelihood estimation with the degrees of a few uniformly sampled nodes. However, since uniform sampling does not obtain enough samples from the important... 53 KB (6,723 words) - 04:57, 6 January 2024
conics. The spacecraft is assumed to accelerate only under classical 2 body dynamics, being domi-

nated by the Earth until it reaches the Moon's sphere of influence... 12 KB (1,336 words) - 17:07, 26 February 2024
Moon, planets, and visible stars. In the 20th century, understanding the dynamics of globular cluster star systems became an important n-body problem. The... 66 KB (8,604 words) - 14:05, 15 March 2024
energy for a uniform electron gas, which can be obtained from the Thomas–Fermi model, and from fits to the correlation energy for a uniform electron gas... 79 KB (10,545 words) - 07:38, 18 February 2024
the eight primordial deities of creation. In Scientology there are eight dynamics of existence.: 39 There is also the Ogdoad in Gnosticism. The number eight... 74 KB (8,067 words) - 17:09, 16 March 2024
study of the observable universe's origin, its large-scale structures and dynamics, and the ultimate fate of the universe, including the laws of science that... 51 KB (3,249 words) - 07:33, 7 March 2024
of orbits for a group of extreme trans-Neptunian objects (ETNOs), bodies beyond Neptune that orbit the Sun at distances averaging more than 250 times that... 177 KB (18,856 words) - 10:23, 5 March 2024
Retrieved 12 August 2015. Moore, Cristopher (1993). "Braids in classical dynamics" (PDF). Physical Review Letters. 70 (24): 3675–3679. Bibcode:1993PhRvL... 43 KB (5,418 words) - 01:00, 12 March 2024
2 . {\displaystyle F={\frac {\pi ^{2}EI}{L^{2}}}.} The field of fluid dynamics contains Ån Stokes' law, which approximates the frictional force F exerted... 146 KB (17,510 words) - 00:56, 15 March 2024
quadratic forms, hyperbolic geometry, Möbius geometry, and sphere geometry, which is connected to the fact that the group of motions in hyperbolic space, the... 96 KB (15,382 words) - 00:01, 7 January 2024
discontinuous and/or discrete loading. Typically partial uniformly distributed loads (u.d.l.) and uniformly varying loads (u.v.l.) over the span and a number... 252 KB (31,104 words) - 11:29, 20 February 2024
can be defined, for instance, in a rotation-invariant way on the uniform hyperbolic tilings in which three heptagons meet at each vertex, or in which... 28 KB (3,489 words) - 23:53, 26 January 2023

Vaughn Climenhaga: Beyond Bowen specification property - lecture 1 - Vaughn Climenhaga: Beyond Bowen specification property - lecture 1 by Centre International de Rencontres Mathématiques 404 views 4 years ago 53 minutes - Recording during the meeting "**Dynamics beyond uniform hyperbolicity**," the May 14, 2019 at the Centre International de ...
Intro
Entropy
Dynamics
Invariant measures
Bowens proof
Proof of uniqueness
General uniqueness proposition
Defining specification
Building an ergodic measure
Building invariant measures
Standard argument
Counting bounds
Erica DISA
Modification
Decomposition
Theorem
Lee KeonHee (ChungNam National Uni.) / Global Dynamics Beyond Uniform Hyperbolicity. - Lee KeonHee (ChungNam National Uni.) / Global Dynamics Beyond Uniform Hyperbolicity. by Mathnet Korea 52 views 5 years ago 59 minutes - KAIST ¬üYü \\4À(2009D 2Y0) 2009-12-03.
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Jacobi Fields
Higher Rank Rigidity Theorem
3-Dimensional Gromov Example
Pressure and Equilibrium States
Scalar Multiples of the Geometric Potential
Measure of Maximal Entropy

Proof of the Entropy Gap
Proving Our Theorem
Equilibrium States
Hyperbolic Fixed Points - Dynamical Systems | Lecture 16 - Hyperbolic Fixed Points - Dynamical Systems | Lecture 16 by Jason Bramburger 999 views 6 months ago 32 minutes - In this lecture we continue with our analysis of nonlinear planar dynamical systems. Here we focus on fixed points and show ...
Corinna Ulcigrai - 1/6 Parabolic dynamics and renormalization: an introduction - Corinna Ulcigrai - 1/6 Parabolic dynamics and renormalization: an introduction by Institut des Hautes Études Scientifiques (IHÉS) 2,011 views 1 year ago 1 hour, 57 minutes - Parabolic dynamical systems are mathematical models of the many phenomena which display a "slow" form of chaotic evolution, ...
Parabolic Dynamics
Butterfly Factor
Dynamical Systems
Elliptic Dynamical System
Linear Flows on the Torus
Linear Flow
The Billiard Flow
Two Hyperbolic Hyper Body Dynamical Systems
The Cat Map
Geodesic Flow
Semi Billiard
Examples of Parabolic
P3 Parabolic Tree
Ergodic Properties
Parabolic Dynamical System
Ergodic Integral
Ergotic Theory
Boltzmann Ergodic Hypothesis
Decay of Correlation
Polynomial Deviations of Ergodic Averages
Mixing via Shearing
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Uniform Theorem
Counting Bounds
Computation
Expansivity Property
Define the Specification Property in a Non Symbolic Setting
Shadowing Property
Classical Specification Property
Bowens Theorem
Formulate the General Result
Definition and State of Theorem
The Entropy of Obstructions to Expansivity
Decomposition of the Space of Orbit Segments
Topological Entropy
Andrey Gogolev: Rigidity in rank one: dynamics and geometry - lecture 1 - Andrey Gogolev: Rigidity in rank one: dynamics and geometry - lecture 1 by Centre International de Rencontres Mathématiques 215 views 4 years ago 51 minutes - Recording during the meeting "**Dynamics beyond uniform hyperbolicity**," the May 14, 2019 at the Centre International de ...
Quantum Bayesianism and the embodied agent - Quantum Bayesianism and the embodied agent by Essentia Foundation 3,631 views 1 year ago 46 minutes - The Nobel Prize in physics in 2022 went to scientists who, for over 40 years, have carried out a series of experiments indicating ...
QBism in a nutshell: Quantum mechanics is a tool of decision theory
Intersubjectivity: the problem
Sharing doesn't presuppose (linguistic) communication

Sharing is not identification
Sharing must be knowable from within the standpoint of either party
Sharing depends on embodiment
(2) How does a QBist agent model other agents?
Sharing depends on abstracting the situation
Amplituhedron - Arkani-Hamed Shows how SpaceTime is only our Mind's view of Infinite Dimensional - Amplituhedron - Arkani-Hamed Shows how SpaceTime is only our Mind's view of Infinite Dimensional by C J 14,352 views 4 years ago 7 minutes, 8 seconds - Excerpted from the first few minutes of his account of how the 'world" is so much more than meets the eye and yet the "volume" of ...
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Intro
Laptop
Printer
Hard Drive
iMac
Other Gadgets
Morphing Wing Masters Final Year Project - Morphing Wing Masters Final Year Project by Morphing Plus 17,461 views 1 year ago 1 minute, 1 second - Completed morphing wing with an adaptive trailing edge of the NACA 0012 aerofoil. Model was 3D printed and is actuated using ...
Holly Krieger - Unlikely intersections in complex dynamics - Holly Krieger - Unlikely intersections in complex dynamics by Temple University Graduate Student Conference 14,604 views 6 years ago 1 hour, 6 minutes - Holly Krieger (University of Cambridge) Unlikely intersections in complex **dynamics**, I will discuss the philosophy of unlikely ...
Intro
Group law
Restatement
Pink and Silver
Complex dynamics
Long term behavior
Example
Pre periodic points
Preimage
Polynomials
Family of dynamical systems
Variety
Zilber Pink
Local polynomial
PCF maps
Theorem
Remarks
Introduction to System Dynamics: Overview - Introduction to System Dynamics: Overview by MIT OpenCourseWare 336,331 views 9 years ago 16 minutes - Professor John Sterman introduces system **dynamics**, and talks about the course. License: Creative Commons BY-NC-SA More ...
Feedback Loop
Open-Loop Mental Model
Open-Loop Perspective
Core Ideas
Mental Models
The Fundamental Attribution Error
Oxford Lecture 01 Introduction to Quantum Mechanics, Probability Amplitudes and Quantum States - Oxford Lecture 01 Introduction to Quantum Mechanics, Probability Amplitudes and Quantum States by CosmoLearning 55,116 views 6 years ago 44 minutes
Derived Probability Distributions
Calculating a Probable Distribution
Combined Probability

Spinless Particles
Advanced Algorithms (COMPSCI 224), Lecture 1 - Advanced Algorithms (COMPSCI 224), Lecture 1 by Harvard University 17,329,291 views 7 years ago 1 hour, 28 minutes - Logistics, course topics, word RAM, predecessor, van Emde Boas, y-fast tries. Please see Problem 1 of Assignment 1 at ...
How geometry created modern physics – with Yang-Hui He - How geometry created modern physics – with Yang-Hui He by The Royal Institution 154,077 views 11 months ago 1 hour, 1 minute - What's the story behind the five axioms of Euclidean geometry - and how is post-Euclidean geometry linked to modern physics?
Introduction
The Elements
Axioms
Parallel Axiom
Play a game
Why 360 degrees
Proof
Tragedy
Arabic mathematics
The Oxford School
Post Renaissance
Second Proof
The Power of Algebra
What is Calculus
Principia Mathematica
Westminster Abbey
Principia
Euler
Newtonian World
Geometers
The Fifth Axion
The Prince of Mathematics
Microfire Day
Special Relativity
Building the gripper for the robot arm (Dynamixel + Amber) - Building the gripper for the robot arm (Dynamixel + Amber) by Skyentific 17,987 views 2 years ago 15 minutes - Today we have build the gripper for the 7 axis robotic arm (Amber B1). But it should be useful also for other robot arms.
Vaughn Climenhaga: Beyond Bowen specification property - lecture 3 - Vaughn Climenhaga: Beyond Bowen specification property - lecture 3 by Centre International de Rencontres Mathématiques 131 views 4 years ago 53 minutes - Recording during the meeting "**Dynamics beyond uniform hyperbolicity**," the May 17, 2019 at the Centre International de ...
Main Theorem
Assumptions on a Partially Hyperbolic Dpo
Unpleasant Entropy Estimates
Phase Space Is an Open Annulus
Define a Decomposition
Unit Tangent Bundle
Negative Curvature
What Lies beyond Negative Curvature
Beyond Non Positive Curvature
Flat Strip Theorem
Residual Finiteness
Symbolic dynamics for nonuniformly hyperbolic systems 1 of 5 - Symbolic dynamics for nonuniformly hyperbolic systems 1 of 5 by ICTP Mathematics 1,512 views Streamed 2 years ago 2 hours, 6 minutes - These mini-courses will be introductory and require only some familiarity with **Uniformly Hyperbolic Dynamics**, and will be spread ...
Symbolic **Dynamics**, for Non-**Uniformly Hyperbolic**, ...
Examples
Geodesic Flows in Negative Curvature
Geodesic Flow
Uniform Hyperbolic Flow

The Simplest Examples in the Non-Uniformly Hyperbolic Context
Example of Flows That Is Non-Uniformly Hyperbolic
Collision Map
Examples of Non-Uniformly Hyperbolic Billiards
Symbolic Models
Topological Markov Shift
Periodic Points
Liatinov Charts
Graph Transforms
Grass Transform
How Is Vn Defined
The Local Stable Manifold
What Is Non-Uniform Hyperbolicity about
Lyapunov Exponent
Laplace Exponent
Specie Charts
Constructing the Environment Manifolds
David Fisher: Rigidity and invariant measures beyond homogeneous dynamics - David Fisher: Rigidity and invariant measures beyond homogeneous dynamics by International Mathematical Union 571 views Streamed 1 year ago 46 minutes - I will discuss two recent works and the role played in both by studying invariant measures **outside**, the context of homogeneous ...
Margulis Superrigidity
First proof steps after Zimmer Let PCG be a minimal parabolic E.g. upper triangular matrices.
Amenable actions
A philosophy
Geodesic submanifolds and arithmeticity
The bridge to dynamics
Dynamics and ist steps in proof
Proofs and measures
Zimmer's Conjecture Theorem (Brown-Fisher-Hurtado)
Keystone of proof Definition
Averaging and entropy
Edson de Faria | Asymptotic holomorphic dynamics and renormalization - Edson de Faria | Asymptotic holomorphic dynamics and renormalization by Einstein Chair Mathematics Seminar 156 views 1 year ago 1 hour, 25 minutes - Abstract: The purpose of this talk is to present a version of the Fatou-Julia-Sullivan theorem for infinitely renormalizable, ...
Introduction
Theme
Asymptotic map
HPL map
Polynomial light map
Not uniformly positive regular
Why study this
Renormalization
Renalization Operator
The CR world
Questions
What is renormalization
Complex bounce
C2 bounds
Chain rule
Theorem
Hyperbolic Metric
Expanding Maps
Laura DeMarco "Rigidity and Uniformity in Algebraic Dynamics - Laura DeMarco "Rigidity and Uniformity in Algebraic Dynamics by Joint Mathematics Meetings 468 views 1 year ago 58 minutes - Laura DeMarco, Harvard University, gives the AWM-AMS Noether Lecture at the 2023 Joint Mathematics Meetings in Boston, MA, ...
Introduction

Illustration
Basic Concepts
History
Compositional Relations
Dynamics
Uniform Bound
Record Holder
Uniform Bounds
Rational Functions
Julia Sets
Complex Dynamics
Bifurcation
Ingredients
Questions
Symbolic dynamics for nonuniformly hyperbolic systems 3 of 5 - Symbolic dynamics for nonuniformly hyperbolic systems 3 of 5 by ICTP Mathematics 386 views Streamed 2 years ago 2 hours, 12 minutes - These mini-courses will be introductory and require only some familiarity with **Uniformly Hyperbolic Dynamics**, and will be spread ...
Introduction
Recap
Difficulties
Catoc
Main ingredients
Neighborhood
Theorem of sarik
Absolute overlap
Absolute double charge
Epsilon double chart
Relativity 105a: Acceleration - Hyperbolic Motion and Rindler Horizon - Relativity 105a: Acceleration - Hyperbolic Motion and Rindler Horizon by eigenchris 56,797 views 3 years ago 31 minutes - 0:00 Intro (Special vs General Relativity) 4:10 Acceleration in SR Intro 6:07 U·A = 0 proof 7:44 Proper Acceleration Definition ...
Intro (Special vs General Relativity)
Acceleration in SR Intro
U·A = 0 proof
Proper Acceleration Definition
Accelerated motion is Hyperbolic Proof
Rindler Horizon
Summary
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Decomposition for the Space of Orbit Segments
Surface Case
Decomposition Structure
Mechanism for the Specification Property
Gromov Example
Regularity
Geometric Potential
The K Property
Dynamics: Oxford Mathematics 1st Year Student Lecture - Dynamics: Oxford Mathematics 1st Year Student Lecture by Oxford Mathematics 213,125 views 5 years ago 50 minutes - After filming a student lecture late last year (see below), for the first time ever, Oxford Mathematics has live streamed a student ...
Daniel J. Thompson: Beyond Bowen's specification property - lecture 3 - Daniel J. Thompson: Beyond Bowen's specification property - lecture 3 by Centre International de Rencontres Mathématiques 63 views 4 years ago 55 minutes - Recording during the meeting "**Dynamics beyond uniform hyperbolicity**," the May 23, 2019 at the Centre International de ...

The Kolmogorov K Property
What Is a Decomposition
Lambda Decomposition
Entropy Gap
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