WORKSHOP

Recent progress in asymptotic stability of solitons and related problems

January 5-9, 2026

Universidad de Magallanes
Punta Arenas – Chile

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About

Recent Progress in Asymptotic Stability of Solitons and Related Problems

The University of Chile, in collaboration with the University of Magallanes, is organizing the workshop *"Recent Progress in Asymptotic Stability of Solitons and Related Problems"*. The goal of the workshop is to bring together scientists working on dispersive partial differential equations, with a particular focus on the long-time behavior of solutions in various settings. In recent years, substantial progress has been made in the study of the asymptotic stability of solitons, especially in low-dimensional models. At the same time, remarkable advances have been made in understanding blow-up phenomena.

The workshop will take place from January 5 to January 9, 2026, in Punta Arenas, Chile.

Partner Institutions and Sponsors

This event has received funding from Proyecto Basal ANID FB210005.

Scientific committee

Piotr Bizoń is a professor of Theoretical Physicist at the Uniwersytet Jagieloński, specializing in nonlinear evolution equations, geometric analysis, and general relativity. His current research interests include dynamics in spatially confined Hamiltonian systems, hyperboloidal approach to dissipation through dispersion, asymptotically anti-de Sitter spacetimes and singularity formation for geometric flows.

Yvan Martel is a professor of Mathematics and researcher at Laboratoire de mathématiques de Versailles (LMV – Université Paris-Saclay, Université Versailles St-Quentin, CNRS). As a researcher, he is specialized in analysis of dispersive and wave partial differential equations, long time behaviour of solutions and soliton theory.

Wilhelm Schlag is a Phillips Professor of Mathematicsat Yale University. He is an expert in harmonic analysis, mathematical physics, and partial differential equations.

Organizing committee

Michal Kowalczyk, Professor at the Department of Mathematical Engineering, Universidad de Chile and Researcher at CMM. His primary research area is in the analysis of solutions of nonlinear elliptic and parabolic singular perturbation problems. More specifically, his research involves the existence of entire solutions of some elliptic equations, parabolic equations and systems modeling molecular level transport phenomena.

Richard Lagos, professor in the Department of Mathematics and Physics at the University of Magallanes. Interdisciplinary researcher interested in contributing to the understanding of the influence of social and environmental determinants on the emergence and persistence of zoonotic diseases

M. Eugenia Martínez Martini, professor at the Department of Mathematical Engineering, Universidad de Chile. Researcher specializing in the study of long-time behavior of solutions, decay properties, solitons and collisions for Schrödinger-type equations and water waves models.

Ricardo Freire, ANID postdoc researcher at the Universidad de Chile. Researcher specializing in Nonlinear Dispersive equations and the relation between the dispersion and topics in Harmonic Analysis.

Timetable

Monday, 5th January

9:00 – 9:50	Inscription	
9:50 - 10:40	**W. Schlag** Yale University	On the long-term dynamics of nonlinear wave equations on the line with a critical potential
10:40 – 11:00	Coffee break	
11:00 - 11:50	**R. Donninger** Universität Wien	Self-similar blowup for mass supercritical Schrödinger equations
11:50 - 12:40	**M. E. Martínez Martini** U. Chile	Dynamics of a generalized abcd Boussinesq solitary wave under a slowly variable bottom
12:40 – 14:30	Lunch	
14:30 - 15:20	**J. Angulo** IME - USP	The non-linear Schrödinger equation on a looping-edge graph with δ'-interaction at the vertex
15:20 – 15:40	Coffee break	
15:40 - 16:30	**M. Ostermann** Universität Bielefeld	Stability of self-similar blowup in wave equations

Tuesday, 6th January

9:00 - 9:50	**F. Merle** CYU & IHES	TBA
9:50 - 10:40	**A. Lawrie** University of Maryland	Scattering for a free Klein Gordon field coupled to a harmonic oscillator
10:40 – 11:00	Coffee break	
11:00 - 11:50	**E. Pacherie** CNRS & CYU	Stability results for the Gross-Pitaevskii equation
11:50 - 12:40	**I. Glogić** Universität Bielefeld	Discretely self-similar blowup for a geometric wave equation
12:40 – 14:30	Lunch	
14:30 - 15:20	**J. Trespalacios** UACH	Long time dynamics in Einstein-Belinski-Zakharov soliton spacetimes
15:20 – 15:40	Coffee break	
15:40 - 16:30	**R. Velozo** Imperial College London	Decay for massless Vlasov fields on Schwarzschild spacetimes – A Hamiltonian approach
16:30 - 17:20	**J. M. Palacios** EPFL	Long finite time bubble trees for two co-rotational wave maps

Wednesday, 7th January – Free

Thursday, 8th January

9:00 - 9:50	**J. Krieger** EPFL	Stabilisation and control of 1d wave maps into general targets
9:50 - 10:40	**Y. Martel** UVSQ	Asymptotic analysis of small energy breathers for the nonlinear Klein-Gordon equation
10:40 – 11:00	Coffee break	
11:00 - 11:50	**J. Lührmann** University of Cologne	Asymptotic stability of the sine-Gordon kink outside symmetry
11:50 - 12:40	**C. Muñoz** U. Chile	Existence and interaction of solitary waves in the Zakharov Water Waves system under a slowly varying bottom
12:40 – 14:30	Lunch	
14:30 - 15:20	**C. Maulén** U. Concepción	On the asymptotic stability problem for soliton solutions to the Boussinesq-type models
15:20 – 15:40	Coffee break	
15:40 - 16:30	PhD Students Session	
19:30	Conference dinner	

Friday 9th January

9:00 - 9:50	**N. S. Manton** University of Cambridge	Skyrmions – Smooth or Singular?
9:50 - 10:40	**S. Gustafson** Univ. of British Columbia	Logarithmic two-solitons and soliton-potential interactions for the NLS
10:40 – 11:00	Coffee break	
11:00 - 11:50	**A. Moutinho** Georgia Institute of Technology	Asymptotic stability of multi-solitons for 1d Supercritical NLS
11:50 - 12:40	**R. Freire** U. Chile	On the asymptotic dynamics for the L^2-supercritical gKDV equation

Condensed timetable

	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 – 9:50	**Inscription**	F. Merle	Free day	J. Krieger	N. S. Manton
9:50 – 10:40	W. Schlag	A. Lawrie		Y. Martel	S. Gustafson
10:40 – 11:00	**Coffee break**			**Coffee break**	
11:00 – 11:50	R. Donninger	E. Pacherie		J. Lührmann	A. Moutinho
11:50 – 12:40	M. E. Martínez Martini	I. Glogić		C. Muñoz	R. Freire
12:40 – 14:30	**Lunch**			**Lunch**	**End of Workshop**
14:30 – 15:20	J. Angulo	J. Trespalacios		C. Maulén	
15:20 – 15:40	**Coffee break**			**Coffee break**	
15:40 – 16:30	M. Ostermann	R. Velozo		PhD students session	
16:30 – 17:20		J. M. Palacios			
19:30				Conference dinner	

List of Abstracts

Monday 5th

On the long-term dynamics of nonlinear wave equations on the line with a critical potential

Timeline: 9:50 - 10:40

Wilhelm Schlag

Yale University (USA)

We will present recent results with Krieger and Widmayer on a cubic NLS on the line with a repulsive inverse square potential. Some of the context in the wider space-time resonance and wave packet methods will be provided.

Self-similar blowup for mass supercritical Schrödinger equations

Timeline: 11:00 - 11:50

Roland Donninger

Universität Wien (Austria)

I present a computer-assisted construction of self-similar blowup for a class of mass supercritical Schrödinger equations in three spatial dimensions. The talk is based on recent joint work with Birgit Schörkhuber and Lorenz Lichtnecker.

Dynamics of a generalized abcd Boussinesq solitary wave under a slowly variable bottom

Timeline: 11:50 - 12:40

M. Eugenia Martínez Martini

Universidad de Chile (Chili)

The Boussinesq abcd system is a 4 - parameter set of equations, originally derived by Bona, Chen and Saut as first order 2 - wave approximations of the incompressible and irrotational, two dimensional water wave equations in the shallow water wave regime, in the spirit of the original Boussinesq derivation. Among many particular regimes, depending each of them in terms of the value of the parameters (a, b, c, d) present in the equations, the generic regimen is characterized by the setting $b, d > 0$ and $a, c < 0$. If additionally $b = d$, the abcd system is hamiltonian. In this talk, we investigate existence of generalized solitary waves and the corresponding collision problem in the physically relevant variable bottom regime, introduced by M. Chen in 2003. More precisely, the bottom is represented by a smooth (and small) space-time dependent function, allowing one to describe in detail the weakly, long interaction regime and the evolution of the solitary wave without destroying it. We prove this result by constructing a new approximate solution that represents the interaction of the solitary wave with the slowly varying bottom.

This is a joint work with André de Laire, Olivier Goubet, Claudio Muñoz and Felipe Poblete.

The non-linear Schrödinger equation on a looping-edge graph with δ'-interaction at the vertex

Timeline: 14:30 - 15:20

Jaime Angulo

IME, Universidade de Säo Paulo (Brazil)

The aim of this lecture is to provide novel results in the mathematical studies associated to the existence and orbital stability of standing wave solutions for the cubic nonlinear Schrödinger equation (NLS) on a looping edge graph $\mathcal{G}_N$, namely, a graph consisting of a circle and a finite amount N of infinite half-lines attached to a common vertex. By considering interactions of δ'-type (where continuity of the profiles at the vertex is not required), we study the dynamics of standing wave solutions with a periodic-profile on the circle and soliton tail-profiles on the half-lines. The existence and (in)stability of these profiles will depend on the relative size of the phase-velocity. The theory developed in this investigation has prospects for the study of other standing wave profiles of the NLS on a looping edge graph. This work was done in collaboration with Alexander Muñoz (IME-USP).

Stability of self-similar blowup in wave equations

Timeline: 15:40 - 16:30

Matthias Ostermann

Universität Bielefeld (Germany)

We consider a family of wave equations with power-nonlinearities that include spatial inhomogeneities. These equations yield numerous explicit self-similar solutions, making them appealing models from the point of view of blowup dynamics. In the pursuit of understanding their large-data evolution, we deal with the nonlinear asymptotic stability of these solutions in all energy-supercritical dimensions without imposing symmetry restrictions. We outline a general framework for the analysis of the wave flow near a self-similar blowup solution and discuss the underlying spectral-theoretic problems.

Tuesday 6th

TBA
Timeline: 9:00 - 9:50

Frank Merle

Université de Cergy-Pontoise and Institut des Hautes Études Scientifiques (France)

TBA

Scattering for a free Klein Gordon field coupled to a harmonic oscillator
Timeline: 9:50 - 10:40

Andrew Lawrie

University of Maryland (USA)

We study the asymptotic dynamics of solutions to a toy model related to the phi-4 kink stability problem. The analysis involves an internal mode. This is joint work in progress with Gong Chen and Jacek Jendrej.

Stability results for the Gross-Pitaevskii equation
Timeline: 11:00 - 11:50

Eliot Pacherie

CNRS & Université de Cergy (France)

The Gross-Pitaevskii equation describes the behavior of superfluids and superconductors. Its dispersive estimates are worse than those for Schrödinger, which leads to difficulties when studying stability problems. In this talk, we present recent progress on these questions in dimension 2, in particular concerning the stability of vortices and travelling waves.

Discretely self-similar blowup for a geometric wave equation

Timeline: 11:50 - 12:40

Irfan Glogić

Universität Bielefeld (Germany)

We consider a semilinear wave equation for maps from the Minkowski space $\mathbb{R}^{1+d}$ into $\mathbb{S}^1$, featuring a null-form nonlinearity. For every $d \geq 1$, we construct a countable family of discretely self-similar (DSS) blowup solutions and analyze their nonlinear stability. We show that all DSS solutions are finite co-dimensionally stable, with the precise co-dimension determined by the explicitly computed unstable spectrum. In particular, the ground state profiles are stable. The proof relies on delicate resolvent estimates, which yield the required linear stability. To our knowledge, this is the first result on the existence and stability of DSS blowup for a nonlinear wave equation. This is joint work with David Hilditch (Lisbon) and David Wallauch (EPFL).

Long time dynamics in Einstein-Belinski-Zakharov soliton spacetimes

Timeline: 14:30 - 15:20

Jessica Trespalacios

Universidad Austral de Chile (Chili)

We consider the vacuum Einstein field equations under the Belinski-Zakharov symmetry, which leaves the problem as a $1+1$ dimensional quasilinear system of PDEs. Depending on the chosen signature of the metric, these spacetimes contain most of the well-known special solutions in General Relativity. In this talk, we consider the case of cosmological metrics, in the Belinski-Zakharov notation, and prove global existence of small Belinski-Zakharov spacetimes under a natural nondegeneracy condition. We also present new energies and virial functionals to provide a description of the energy decay of smooth global cosmological metrics inside the light cone. Finally, some applications are presented in the case of the particular metrics called generalized Kasner solitons.

Decay for massless Vlasov fields on Schwarzschild spacetimes – A Hamiltonian approach

Timeline: 15:40 - 16:30

Renato Velozo

Imperial College London (UK)

In this talk, I will present a Hamiltonian approach to show decay for massless Vlasov fields on the exterior of black hole backgrounds. Vlasov fields are transported along the geodesic flow, and so, the existence of trapped geodesics is an important difficulty. We address this issue by working with a well-chosen defining function of the set of past-trapped geodesics. By using a projection of the associated symplectic gradient we show decay in time of a suitable energy norm. As a corollary, we obtain decay in time of the energy-momentum tensor. This work is motivated by the black hole stability problem with Vlasov matter. This is joint work with Léo Bigorgne (Université de Rennes).

Long finite time bubble trees for two co-rotational wave maps

Timeline: 16:30 - 17:20

José Manuel Palacios

École polytechnique fédérale de Lausanne (Swiss)

We show that the energy critical Wave Maps equation from $\mathbb{R}^{2+1}$ into $\mathbb{S}^2$, restricted to the $k = 2$ co-rotational setting, admits arbitrarily large numbers of concentrating concentric n bubble profiles. For any $n \in \mathbb{N}$, we construct an n bubble solution concentrating at scales $\lambda_1(t) \gg \lambda_2(t) \gg \ldots \gg \lambda_n(t)$, where $\lambda_n(t) = t^{-1} |\log t|^{\beta}$, and $\lambda_j(t) \geq \exp\left(\int_t^{t_0} \lambda_{j+1}(s)ds\right)$, for any $\beta > \frac{3}{2}$ is a parameter that can be chosen arbitrarily. This shows that, as far as finite time blow-up case is concerned, the entirety of cases postulated in the soliton resolution theorem indeed occur, provided the concentric collapsing bubbles have alternating signs.

Work in collaboration with Joachim Krieger.

Thursday 8th

Stabilisation and control of 1d wave maps into general targets

Timeline: 9:00 - 9:50

Joaquim Krieger

École polytechnique fédérale de Lausanne (Swiss)

I will discuss recent work, joint with J.-M. Coron (Paris) and S. Xiang (Beijing) on stabilisation and control of one dimensional wave maps into general target manifolds. Emphasis is placed on quantitative results; this reveals new geometric and topological features of the problem.

Asymptotic analysis of small energy breathers for the nonlinear Klein-Gordon equation

Timeline: 9:50 - 10:40

Yvan Martel

Université Versailles St-Quentin (France)

For a class of nonlinear Klein-Gordon equations, we prove that in the small energy limit, any sequence of breathers decomposes into a finite sum of decoupled, periodically modulated canonical solitons. Work in collaboration with Michal Kowalczyk (U. Chile)

Asymptotic stability of the sine-Gordon kink outside symmetry

Timeline: 11:00 - 11:50

Jonas Lührmann

University of Cologne (Germany)

We consider scalar field theories on the line with Ginzburg-Landau (double-well) self-interaction potentials. Prime examples include the ϕ^4 model and the sine-Gordon model. These models feature simple examples of topological solitons called kinks. The study of their asymptotic stability leads to a rich class of problems owing to the combination of weak dispersion in one space dimension, low power nonlinearities, and spectral features of the linearized operators such as threshold resonances or internal modes.

We present a perturbative proof of the full asymptotic stability of the sine-Gordon kink outside symmetry under small perturbations in weighted Sobolev norms. The strategy of our proof combines a space-time resonances approach based on the distorted Fourier transform to capture modified scattering effects with modulation techniques to take into account the invariance under Lorentz transformations and under spatial translations. A major difficulty is the slow local decay of the radiation term caused by the threshold resonances of the non-selfadjoint linearized matrix operator around the modulated kink. Our analysis hinges on two remarkable null structures that we uncover in the quadratic nonlinearities of the evolution equation for the radiation term as well as of the modulation equations.

The entire framework of our proof, including the systematic development of the distorted Fourier theory, is general and not specific to the sine-Gordon model. We conclude with a discussion of potential applications in the generic setting (no threshold resonances) and with a discussion of the outstanding challenges posed by internal modes such as in the well-known ϕ^4 model.

This is joint work with Gong Chen (GeorgiaTech).

Existence and interaction of solitary waves in the Zakharov Water Waves system under a slowly varying bottom

Timeline: 11:50 - 12:40

Claudio Muñoz

Universidad de Chile (Chili)

The Zakharov Water Waves system (ZWW) models the evolution of an inviscid irrotational fluid with free surface in 2 and 3 dimensions. These are characterized by a quasilinear system for the free surface and the fluid potential at the free boundary. In the finite flat bottom case, Amick-Kirchgässner proved the existence of small solitary waves. However, in practical situations, the bottom is always non-constant. In this work, we deal with the generalized solitary wave problem for the ZWW system with surface tension and a non-flat bottom, in one dimension, in the form of a slowly varying (in space) bottom. Our main result establishes that, under suitable conditions on the variation of the bottom, such a generalized nonlinear wave exists and interacts with the bottom in a well-defined fashion, surviving the weak long interaction and exiting the interaction region with well-defined final scaling and shift parameters. The techniques used in the proof of the main result are extensions of the construction of a multi-soliton like solution, and the interaction of solitary waves and different media. However, the ZWW case presents a considerable amount of new challenges, including: shape derivatives of Dirichlet-Neumann and Neumann-Neumann boundary operators, the quasilinear character of the model, and the lack of a suitable asymptotic stability theory for solitary waves.

Joint work with Frédéric Rousset (U. Paris-Saclay) and María Eugenia Martínez Martini (U. Chile).

On the asymptotic stability problem for soliton solutions to the Boussinesq-type models.

Timeline: 14:30 - 15:20

Christopher Maulén

Universidad de Concepión (Chili)

In this talk, we introduce the Boussinesq family of equations, revisit some known results, and present new findings on the asymptotic stability of solitary wave solutions in the energy space. In particular, we consider the one-dimensional Kaup–Broer–Kuperschmidt (KBK) model with initial data in the energy space $H^1 \times L^2$. This model belongs to the broader family of abcd Boussinesq models introduced by Bona, Chen, and Saut, to describe shallow water waves under the influence of dispersion and large amplitudes. The KBK model admits solitary waves with speeds $c \in (-1, 1)$. Angulo established their orbital stability in $L^2 \times H^1$, assuming local well-posedness in $H^1 \times H^2$. Building on this, we prove that KBK solitary waves are asymptotically stable for initial data in the energy space and for a range of speeds, relying on a new set of virial estimates specifically adapted to the KBK system in a moving frame. This talk is based on joint work with Claudio Muñoz.

Friday 9th

Skyrmions – Smooth or Singular?

Timeline: 9:00 - 9:50

Nicholas Stephen Manton

University of Cambridge (UK)

Skyrmions are topological solitons in $3+1$ dimensions. They are solutions of a nonlinear scalar field theory whose fundamental fields are pions, the particles largely responsible for strong nuclear forces. Mathematically, they are time-dependent maps from $\mathbb{R}^3$ to a 3-sphere, controlled by a Lorentz-invariant Lagrangian. The Skyrmions represent baryons, i.e. protons and neutrons and larger atomic nuclei. Static Skyrmions of minimal energy appear to be smooth, as do slowly spinning and colliding Skyrmions, although complete mathematical proofs are lacking. However, singularities are observed in numerical simulations of higher-energy collisions, and in Skyrmion-antiSkyrmion annihilation, something that is partly understood theoretically. Greater clarity about the singularity formation, and its physical significance, is highly desirable.

Logarithmic two-solitons and soliton-potential interactions for the NLS

Timeline: 9:50 - 10:40

Stephen Gustafson

University of British Columbia (Canada)

For nonlinear Schrödinger equations with potentials, we identify an effective soliton-potential interaction, computed through a perturbed eigenvalue problem, which can be used to determine if logarithmically separating two-soliton solutions persist in the presence of the potential. Such solutions are known in the absence of a potential – classically in the integrable case, and more recently due to Nguyen in non-integrable cases. Parts are joint work with Takahisa Inui, and with Mark Choi.

Asymptotic stability of multi-solitons for 1d Supercritical NLS

Timeline: 11:00 - 11:50

Abdon Moutinho

Georgia Institute of Technology (USA)

In this talk, for any natural m, we show the asymptotic stability of multi-solitons consisting of m solitons of on a subspace of L^2 having finite co-dimension m. More precisely, we show that the remainder converges in the H^1 norm to a scattering state (Modified Wave Operator). In particular, we extend the results of Krieger and Schlag about the stability single soliton to multi-solitons for a large set of supercritical NLS models. This is a joint work with Gong Chen.

On the asymptotic dynamics for the L^2-supercritical gKDV equation

Timeline: 11:50 - 12:40

Ricardo Freire

Universidad de Chile (Chili)

We study the L^2-supercritical generalized Korteweg-de Vries equation (gKdV) with nonlinearities $p > 5$. We develop a unified description of the non-solitonic region for arbitrary H^1 solutions, both global and blowing up. Our analysis shows that the asymptotic L^2 and L^p dynamics in this region is completely determined by the growth rate of the L^2 norm of the gradient. In particular, we prove sharp far-field decay on both half-lines and establish normalized local vanishing along sequences of times, with improved estimates in the case of even-power nonlinearities. A key ingredient is a new virial method that compensates for the possible unboundedness of the H^1 norm by exploiting the conservation of mass and a careful localization of the nonlinear flux. This yields quantitative versions of decay phenomena previously known only in subcritical settings, and it applies without any smallness or proximity-to-soliton assumptions.

List of Abstracts – PhD Students sessions

Kink dynamics for the Yang-Mills field in an extremal Reissner-Nordström black hole

Ignacio Acevedo, *Université Paris-Saclay (France)*

We consider the spherically symmetric and purely magnetic SU(2) Yang-Mills field in an extremal Reissner-Nordström black hole. The kink is a fundamental, strongly unstable stationary solution in this non-perturbative, variable coefficients model, with a polynomial tail and no explicit form. In this talk, I will discuss the main steps involved in the asymptotic stability of the kink within a suitable stable finite codimensional manifold of the energy space. The analysis relies on extending and adapting several virial techniques to this non-perturbative, variable coefficient model and on a careful construction of the stable manifold. In particular, we handle the emergence of a weak threshold resonance in the description of the stable manifold.

This is a joint work with C. Muñoz.

4D-Wormhole Yang–Mills Kink and Its Asymptotic Stability

Javier Monreal, *Universidad de Chile (Chili)*

In this talk, I will present a study of the long-time behavior of a kink solution to a nonlinear wave equation. The main difficulty arises from the presence of a hyperbolic cosine factor multiplying the second-order time derivative, which leads to a complex dynamical behavior, particularly in relation to the displacement of structures and by the non-conservation of momentum. We focus on the stability of the kink centered at the origin under odd perturbations. The analysis is carried out using a virial method, adapted to address the challenges imposed by the hyperbolic nature of the equation.

Bounds on the approximation error for deep neural networks applied to dispersive models: Nonlinear waves

Nicolás Valenzuela, *Universidad de Chile (Chili)*

We present a comprehensive framework for deriving rigorous and efficient bounds on the approximation error of deep neural networks in PDE models characterized by branching mechanisms, such as waves, Schrödinger equations, and other dispersive models. This framework utilizes the probabilistic setting established by Henry-Labordère and Touzi. We illustrate this approach by providing rigorous bounds on the approximation error for both linear and nonlinear waves in physical dimensions $d = 1, 2, 3$, and analyze their respective computational costs starting from time zero. We investigate two key scenarios: one involving a linear perturbative source term, and another focusing on pure nonlinear internal interactions. This is joint work with Claudio Muñoz.

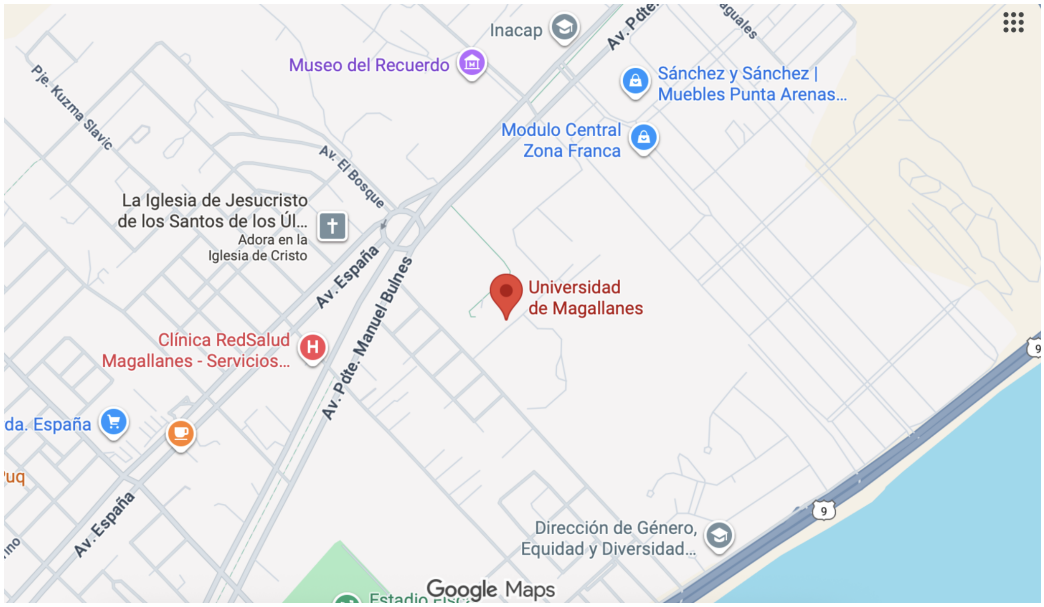
Useful Information

The event will be held at the Universidad de Magallanes, located in Punta Arenas, Chile:

Conference Room of the Faculty of Engineering (fourth floor)
Central Campus of the University of Magallanes
Adress: Avenida Presidente Manuel Bulnes 01855, Punta Arenas, Magallanes y la Antártica Chilena

How to get to the Universidad de Magallanes?

See the University on google maps.



Adress: Avenida Presidente Manuel Bulnes 01855, Punta Arenas, Magallanes y la Antártica Chilena

List of Participants

Name	Affiliation
Ignacio Acevedo	Université Paris-Saclay
Jaime Angulo	IME - Universidade Säo Paulo
Piotr Bizoń	Uniwersytet Jagieloński
Mauricio Díaz	Universidad del Bío Bío
Roland Donninger	Universität Wien
Ricardo Freire	Universidad de Chile
Irfan Glogić	Universität Bielefeld
Stephen Gustafson	University of British Columbia
Michal Kowalczyk	Universidad de Chile
Joaquim Krieger	École polytechnique fédérale de Lausanne
Richard Lagos	Universidad de Magallanes
Andrew Lawrie	University of Maryland
Jonas Lührmann	University of Cologne
Nicholas Stephen Manton	University of Cambridge
M. Eugenia Martínez Martini	Universidad de Chile
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