

**ALLEGATO B**

UNIVERSITÀ DEGLI STUDI DI MILANO

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**[Nome e cognome]  
CURRICULUM VITAE****INFORMAZIONI PERSONALI (NON INSERIRE INDIRIZZO PRIVATO E TELEFONO FISSO O CELLULARE)**

COGNOME	LEWANSKI
NOME	DANILO
DATA DI NASCITA	[ Giorno, mese, anno ] 27/09/1989

**INSERIRE IL PROPRIO CURRICULUM**  
(non eccedente le 30 pagine)

Data

15/03/2021

Luogo

PARIGI, FRANCIA



# Curriculum Vitae



## PERSONAL INFORMATIONS:

🇮🇹 Italian citizen

🎂 27 September 1989

✉ danilo.lewanski@ipht.fr

🏠 Inst. Hautes Études Scientifiques (IHES) and Inst. Physique Théorique (IPhT), Paris, France

📧 danilo.lewanski

## Education and professional experience

### Researcher

*Jussieu-Paris Rive Gauche,  
Sorbonne Université, Paris, FR*

*Nov 21 - Oct 23*

Funded by the ERC Consolidator Grant “ROGW” 864919 with PI Prof. Giorgeva.

### Researcher

*IHES and IPhT, Paris, FR*

*Nov 19 - Oct 21*

Funded by the ERC Synergy Grant “ReNewQuantum” with PI Prof. Andersen, Prof. Eynard, Prof. Kontsevich, Prof. Mariño.

### Researcher

*Max-Planck-Institut, Bonn, DE*

*Nov 17 - Oct 19*

PI: Gaëtan Borot and Don Zagier.

### Ph.D. in Mathematics

*Univ. Amsterdam, NL*

*Nov 13 - Oct 17*

Thesis Title: “Enumerative geometry and moduli spaces of curves via topological recursion”

Topics: Algebraic Geometry and Mathematical Physics

Supervisor: Sergey Shadrin

### M.Sc. in Mathematics

*Università di Padova, IT*

*Sep 11 - Jul 13*

Specialization in Algebra, Geometry and Number Theory (ALGANT courses)

Thesis title: “Moduli Spaces in Algebraic Geometry” on Mumford’s Geometric Invariant Theory

Thesis Supervisor: Francesco Bottacin

### B.Sc. in Mathematics

*Università di Bologna, IT*

*Sep 09 - July 11*

Thesis title: “Knot Theory of robotic arms in 3D and 4D spaces” on Algebraic Topology

Thesis Supervisor: Massimo Ferri

## Publications and preprints

### On the Kontsevich Geometry of the combinatorial Teichmüller space

*Article*

ARXIV:2010.11806

*2020*

Joint work with J. Andersen, G. Borot, S. Charbonnier, A. Giacchetto, C. Wheeler

<b>On the Goulden-Jackson-Vakil conjecture for double Hurwitz numbers</b> ARXIV:2003.08043, SUBMITTED Joint work with N. Do.	<i>Article</i> 2020
<b>Double Hurwitz numbers: polynomiality, topological recursion and intersection theory</b> ARXIV:2002.00900, SUBMITTED Joint work with G. Borot, N. Do, M. Karev, E. Moskovsky.	<i>Article</i> 2020
<b>Masur-Veech volumes and intersection theory: the principal strata of quadratic differentials</b> ARXIV:1912.02267, SUBMITTED D. Chen, M. Möller, A. Sauvaget, with an appendix joint with G. Borot, A. Giacchetto	<i>Appendix</i> 2019
<b>Topological recursion for Masur-Veech volumes</b> ARXIV:1905.10352, SUBMITTED Joint work with J. Andersen, G. Borot, V. Delecroix, S. Charbonnier, A. Giacchetto, C. Wheeler	<i>Article</i> 2019
<b>Wall-crossing and recursion formulae for tropical Jucys covers</b> ARXIV: 1905.02247, TRANSACTIONS OF THE AMERICAN MATHEMATICAL SOCIETY 373 (2020), 4685-4711 Joint work with M. Anas Hahn.	<i>Article</i> 2019
<b>Half-spin tautological relations and Faber's proportionalities of kappa classes</b> SYMMETRY, INTEGRABILITY AND GEOMETRY: METHODS AND APPLICATIONS (SIGMA), 15, [080] Joint work with E. Garcia Failde, R. Kramer, S. Shadrin	<i>Article</i> 2019
<b>Tropical Jucys covers</b> ARXIV: 1808.01383, SUBMITTED Joint work with M. Anas Hahn.	<i>Article</i> 2018
<b>Harer-Zagier formula via Fock space</b> COMMUNICATIONS IN NUMBER THEORY AND PHYSICS, 13 (2019), 3, 619-626	<i>Article</i> 2018
<b>Wall-crossing formulae and strong piecewise polynomiality for mixed Grothendieck dessins d'enfants, monotone and simple double Hurwitz numbers</b> ADVANCES IN MATHEMATICS 336 (2018), 38-69 Joint work with M. Anas Hahn, R. Kramer.	<i>Article</i> 2017
<b>Special cases of the orbifold version of Zvonkine's <math>r</math>-ELSV formula</b> MICHIGAN MATHEMATICAL JOURNAL, ADVANCE PUBLICATION (2020), 34 PAGES Joint work with G. Borot, R. Kramer, A. Popolitov, S. Shadrin.	<i>Article</i> 2017
<b>Towards an orbifold generalization of Zvonkine's <math>r</math>-ELSV formula</b> TRANSACTIONS OF THE AMERICAN MATHEMATICAL SOCIETY, 372 (2019), 4447-4469 Joint work with R. Kramer, A. Popolitov, S. Shadrin.	<i>Article</i> 2017
<b>On ELSV-type formulae, Hurwitz numbers and topological recursion</b> AMS PROCEEDINGS OF SYMPOSIA IN PURE MATHEMATICS, VOLUME 100, 2018. HTTPS://DOI.ORG/10.1090/PSPUM/100/01764.	<i>Expository</i> 2017

## The tautological ring of $\mathcal{M}_{g,n}$ via Pandharipande-Pixton-Zvonkine $r$ -spin relations

Article

ALGEBRAIC GEOMETRY 5.6 (2018), 703-727

2017

Joint work with R.Kramer, F. Labib, S. Shadrin

## Quasi-polynomiality of monotone orbifold Hurwitz numbers and Grothendieck's dessins d'enfant

Article

DOCUMENTA MATHEMATICA 24, 857-898 (2019)

2016

Joint work with R.Kramer, S. Shadrin

## Ramifications of Hurwitz theory, KP integrability and quantum curves

Article

JOURNAL OF HIGH ENERGY PHYSICS, 2016(5), DECEMBER 2015

2016

Joint work with A. Alexandrov, S. Shadrin

## $\mathcal{W}$ -algebra constraints and topological recursion for $A_N$ -singularity

Appendix

INTERNATIONAL JOURNAL OF MATHEMATICS 27, 1650110(2016)

2016

The main author is T. Milanov, appendix by D. Lewanski

## Polynomiality of orbifold Hurwitz numbers, spectral curve, and a new proof of the Johnson-Pandharipande-Tseng formula

Article

JOURNAL OF THE LONDON MATHEMATICAL SOCIETY 92(3), 547-565, APRIL 2015.

2015

Joint work with P. Dunin-Barkowski, A. Popolitov, S. Shadrin

## Chiodo formulas for the $r$ -th roots and topological recursion

Article

LETTERS IN MATHEMATICAL PHYSICS, 107(5), 901-919.

2015

Joint work with A. Popolitov, S. Shadrin, D. Zvonkine

## Selected Talks

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### Invited talk: TBA

Moscow, *RUS*

CONFERENCE MOSCATR VII

Jun, 2021

### Invited talk: Cohomologie des espaces de modules des courbes de la physique mathématique.

IMB, Dijon, *FR*

MATHEMATICAL PHYSICS SEMINAR

Mar, 2021

### Invited talk: ELSV-type formulae and new conjectures for BKP integrability II .

Higher School for Economics,  
Moscow, *RUS*

INTERNATIONAL TOPOLOGICAL RECURSION AND INTEGRABILITY SEMINAR

Mar, 2021

### Invited talk: ELSV-type formulae and new conjectures for BKP integrability I .

Higher School for Economics,  
Moscow, *RUS*

INTERNATIONAL TOPOLOGICAL RECURSION AND INTEGRABILITY SEMINAR

Mar, 2021

### Invited talk: Cohomologie des espaces de modules des courbes de la physique mathématique.

IMB and LaBRI, Bordeaux, *FR*

GENERAL MATHEMATICAL SEMINAR

Feb, 2021

**Invited talk: Mathematical Physics for the Algebraic Geometry of moduli spaces of curves.**

*Copenhagen University, DK*

*Feb 2021*

**Invited talk: Interaction between string theory, integrable systems and moduli spaces of curves.**

GEOMETRY SEMINAR

*KU Leuven, BE*

*Feb 2021*

**Invited talk: Topological recursion, matrix models, and moduli spaces of curves.**

MATHEMATICAL PHYSICS SEMINAR

*SISSA Trieste, Italy*

*Jan, 2021*

**Invited talk: Resurgent Topological Recursion.**

CONFERENCE WINTER SCHOOL IN MATHEMATICAL PHYSICS 2021

*Les Diablerets, CH*

*Jan 2021*

**Invited talk: Topological Recursion for Hurwitz theory and intersection theory of moduli spaces of curves.**

*Bologna University, Italy*

*Jan 2021*

**Invited talk: Hurwitz theory, topological recursion, and ELSV formulae**

CONFERENCE TOPOLOGICAL AND GEOMETRIC RECURSION IN INTERACTION WITH RESURGENCE

*Miami, USA*

*Feb, 2020*

**Resurgence theory**

UNIVERSITY OF MELBOURNE

*Melbourne, AUS*

*Feb, 2020*

**Invited talk: on a conjecture of Goulden, Jackson, and Vakil**

JUSSIEU ENUMERATIVE GEOMETRY SEMINAR

*Paris, FR*

*Dec 5, 2019*

**Invited talk: Topological recursion and Masur-Veech volumes**

IHES ENUMERATIVE GEOMETRY SEMINAR

*Paris, FR*

*Dec 2, 2019*

**Invited talk: Topological recursion and Masur-Veech volumes**

INTERNATIONAL SYMPOSIUM QUANTUM THEORY AND SYMMETRIES AT CRM MONTRÉAL

*Montréal, CAN*

*Jul 2, 2019*

**Invited talk: Tropical Jucys covers**

UNIVERSITÉ DE GENÈVE

*Genève, CH*

*Mar 18, 2019*

**Invited Talk: Virasoro constraints for simple maps and free probability**

CONFERENCE MOSCATR VI

*Moscow, RUS*

*June 7, 2018*

**Invited Talk: Tautological ring and Pandharipande-Pixton-Zvonkine tautological relations**

UNIVERSITÉ DE BOURGOGNE

*Dijon, FR*

*Sep 7, 2017*

## Invited Talk: Orbifold Hurwitz numbers, topological recursion and ELSV-type formulae

WINTER SCHOOL ON COMBINATORICS AND INTERACTIONS, CIRM

Marseille, FR

Jan 13, 2017

## Invited Talk: Topological recursion and Hurwitz numbers

CONFERENCE TOPOLOGICAL RECURSION AND MODULARITY

Matrix center, Creswick, USA

Dec 22, 2016

## Contributed Talk: From Topological Recursion to Johnson-Pandharipande-Tseng Formula (and back)

2016 AMS VON NEUMANN SYMPOSIUM: TOPOLOGICAL RECURSION AND ITS INFLUENCE IN ANALYSIS, GEOMETRY, AND TOPOLOGY

Charlotte, NC, USA

Jul 6, 2016

## Contributed Talk: On Hurwitz enumerative problems

FIFTH WORKSHOP ON COMBINATORICS OF MODULI SPACES, HURWITZ NUMBERS, AND COHOMOLOGICAL FIELD THEORIES

Moscow, RUS

Jun 9, 2016

## Invited Talk: Gromov-Witten Invariants

CONFERENCE PROSPECTIVES IN PHYSICAL MATHEMATICS

Bologna, IT

Dec 18, 2014

## Scientific expeditions

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### Matrix Institute, Creswick, Australia

Event *Interactions between topological recursion, modularity, quantum invariants and low-dimensional topology*, November-December 2016

### Institut Henri Poincaré, Paris

Thematic trimester *Combinatorics and interactions*, February-March 2017

### Monash University, Melbourne

Bartnik Visiting Grant awardee ( $\sim 10k$  AUD) with host Prof. N. Do, February 2019

### Amsterdam University

Research visit with host Prof. S. Shadrin, July 2019

### Monash University, Melbourne

Research visit with host Prof. N. Do, February 2020

### Melbourne University

Research visit with host Prof. P. Norbury, March 2020

## Service

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### Journal Referee

Referee for Manuscripta Mathematica, Communications in Mathematical Physics, Journal of High Energy Physics, Selecta Mathematica, SIGMA.

## Conferences

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### ICM 2018: International Conference of Mathematicians

Rio, BR

Aug 1-9, 2018

### MOSCATR VI: 6th Workshop on Combinatorics of Moduli Spaces, Cluster Algebras, and Topological Recursion

Moscow, RUS

June 4-9, 2018

### Workshop on Moduli Spaces of Curves, Integrable Systems and related subjects

Dijon, FR

Sep 4-8, 2017

### Trimester Combinatorics and Interactions, IHP

Paris, FR

Feb 27- Mar 31, 2017

<b>Winter school on combinatorics and interactions, CIRM</b>	<i>Marseille, FR</i> <i>Jan 9-13, 2017</i>
<b>Interactions between Topological recursion, modularity, quantum invariants and low-dimensional topology, Matrix center</b>	<i>Creswick, AUS</i> <i>Nov 28 - Dec 23, 2016</i>
<b>2016 AMS von Neumann Symposium: Topological Recursion and its Influence in Analysis, Geometry, and Topology</b>	<i>Charlotte, NC, USA</i> <i>Jul 4-8, 2016</i>
<b>Fifth Workshop on Combinatorics of Moduli Spaces, Hurwitz numbers, and Cohomological Field Theories</b> HSE, STEKLOV INSTITUTE, SKOLKOVO INSTITUTE OF SCIENCE AND TECHNOLOGY AND INDEPENDENT UNIVERSITY	<i>Moscow, Russia</i> <i>Jun 6-11, 2016</i>
<b>2015 AMS Summer Research Institute in Algebraic Geometry</b> UNIVERSITY OF UTAH	<i>Salt Lake City, UT, USA</i> <i>Jul 13-24, 2015</i>
<b>Counting Instantons</b> LORENTZ CENTER	<i>Leiden, The Netherlands</i> <i>Jun, 16-20, 2015</i>
<b>Workshop on mathematical physics</b> UNIVERSITEIT VAN AMSTERDAM In occasion of the PhD Defense of Petr Dunin-Barkowski	<i>Amsterdam, The Netherlands</i> <i>May 26-28, 2015</i>
<b>Perspectives in Physical Mathematics</b> UNIVERSITÀ DI BOLOGNA	<i>Bologna, Italy</i> <i>Dec 18-19, 2014</i>
<b>Geometry and Quantum Theory Colloquium</b> GQT CLUSTER	<i>The Netherlands</i> <i>Nov 6-7, 2014</i>
<b>Geometry and Quantum Theory Colloquium</b> GQT CLUSTER	<i>The Netherlands</i> <i>Jul 3-4, 2014</i>
<b>Workshop on Instanton Counting: Moduli Spaces, Representation Theory and Integrable Systems</b> LORENTZ CENTER	<i>Leiden, The Netherlands</i> <i>Jun 16, 2014</i>
<b>Fourth Workshop on Combinatorics of Moduli Spaces, Cluster Algebras and Topological Recursion</b> HSE, STEKLOV INSTITUTE, AND INDEPENDENT UNIVERSITY	<i>Moscow, Russia</i> <i>May 26-31, 2014</i>
<b>Mirror Symmetry and Spin Curves</b> PALAZZONE DI CORTONA	<i>Cortona, Italy</i> <i>Apr 28-30, 2014</i>

## On Quantization of Moduli Spaces

*Geneva, Switzerland*

*Apr 22-25, 2014*

## Moduli of curves and mathematical physics

UNIVERSITEIT VAN AMSTERDAM

In occasion of the PhD Defense of Loek Spitz

*Amsterdam, The Netherlands*

*Jan 23, 2014*

## Geometry and Quantum Theory Colloquium

GQT CLUSTER

*The Netherlands*

*Jan 17-18, 2014*

## Workshop on Algebraic Cycles and Tautological classes

In occasion of the PhD Defense of Qizheng Yin

*Nijmegen, The Netherlands*

*Dec 18, 2013*

## VBAC2013: Hilbert Schemes, Sheaves and Representations

SISSA

*Trieste, Italy*

*Jun 17-21, 2013*

## Recent trends in Algebraic Analysis

UNIVERSITÀ DI PADOVA

*Trieste, Italy*

*Feb 19-23, 2013*

## Attended Schools

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### Advanced School on Moduli Spaces, Mirror Symmetry and Enumerative Geometry

ICTP

*Trieste, Italy*

*Aug 1-12, 2016*

### Geometry and Quantum Theory Graduate School

GQT CLUSTER

*The Netherlands*

*Nov 3-5, 2014*

### Modern trends in Gromov-Witten theory

UNIVERSITÄT OF HANNOVER

*Hannover, Germany*

*Sep 8-12, 2014*

### Geometry and Quantum Theory Graduate School

GQT CLUSTER

*The Netherlands*

*Jun 30-2, 2014*

### Geometry and Quantum Theory Graduate School

GQT CLUSTER

*The Netherlands*

*Jan 14-16, 2014*

### The 9th William Rowan Hamilton Geometry and Topology Workshop on Geometry and Groups after Thurston

TRINITY COLLEGE DUBLIN

*Dublin, Ireland*

*Aug 27-31, 2013*

### Applied and Computational Algebraic Topology (ACAT) School

UNIVERSITÀ DI BOLOGNA

*Bologna, Italy*

*May 25-26, 2012*

### Cohomology Theories: a Road Map

*Bressanone, Italy*

*Sep 12-17, 2011*



## Teaching

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### Wiskunde N2

ORDINARY AND PARTIAL DIFFERENTIAL EQUATIONS

Assistant

Fall 16

### Algebra I

GROUP THEORY

Assistant

Spring 15

### Wiskunde N2

ORDINARY AND PARTIAL DIFFERENTIAL EQUATIONS

Assistant

Fall 15

### Algebra I

GROUP THEORY

Assistant

Spring 15

### Wiskunde N2

ORDINARY AND PARTIAL DIFFERENTIAL EQUATIONS

Assistant

Fall 14

### Galois Theorie

GALOIS THEORY

Assistant

Spring 14

### Wiskunde N3

COMPLEX ANALYSIS

Assistant

Fall 13

## Outreach activities

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### Development of a open-access maths educational online repository for local delivery in times of Covid-19 pandemic (<https://virtualmathscamp.com>)

LEADING THE VIDEO TEAM AS A DIRECTOR OF SAMI (SUPPORTING AFRICAN MATHEMATICS INITIATIVES)

Team leader

Summer-Fall 20

### SAMI (Supporting African Mathematics Initiatives) Maths Camp Rwanda

ORGANISER OF A TWO WEEKS MATHS CAMP FOR HIGH SCHOOL STUDENTS

Main organizer

Summer 19

### "Crosspollination" workshop on maths education in Africa in Cape Coast, Ghana

ESTABLISHING A COMMUNITY OF PRACTICE WITH INTERNATIONAL MATHS EDUCATORS AT DIFFERENT LEVELS

Speaker and participant

Spring 19

### SAMI (Supporting African Mathematics Initiatives) Maths Camp Kenya

VOLUNTEERING IN A TWO WEEKS MATHS CAMP FOR HIGH SCHOOL STUDENTS

Co-organizer

Summer 18

### SAMI (Supporting African Mathematics Initiatives) Maths Camp Ghana

VOLUNTEERING IN A TWO WEEKS MATHS CAMP FOR HIGH SCHOOL STUDENTS

Co-organizer

Summer 17

### SAMI (Supporting African Mathematics Initiatives) Maths Camp Tanzania

VOLUNTEERING IN A TWO WEEKS MATHS CAMP FOR HIGH SCHOOL STUDENTS

Co-organizer

Summer 16

## Skills

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**Programming**    Mathematica, Matlab, C/C++, LaTeX  
**Languages**      Italian (Mother tongue), English (C1), Spanish, French (B2), Dutch, German (B1)  
**Others**            Judo instructor for children and adults for two years, Scout chief, one year Civil Service