# Jonas Schnitzer

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## Personal

Born on September 15, 1990.

German Citizen.

## Academic Appointments

**October 2024–present: Postdoctoral position**
at the Department of Mathematics of the University of Pavia, Italy. Mentor: Prof. Michele Schiavina.

**November 2019 – September 2024: wissenschaftlicher Mitarbeiter (Post-Doc)**
Department of Mathematics of the Univeristy of Freiburg, mentor: Prof. Sebastian Goette, Katrin Wendland.

## Academic Degrees

**Ph.D. in Mathematics**
University of Salerno, Italy, 2016-2019

*Thesis*: Local and Global Properties of Jacobi Related Geometries. (with distinction)
*Thesis Advisor*: Prof. Dr. Luca Vitagliano

**Master Degree in Mathematical Physics**
120 ECTS credits, Grade: 1,0, with distinction, University of Würzburg, 2014-2016

*Thesis*: A simple algebraic construction of Drinfel'd twist.
*Thesis Advisor*: Prof. Dr. Stefan Waldmann and Dr. Chiara Esposito

**Bachelor Degree in Mathematical Physics**
180 ECTS credits, Grade: 1,6, University of Würzburg, 2010-2014

*Thesis*: Zur Rollabbildung von Hyperboloiden.
*Thesis Advisor*: Prof. Dr. Knut Hüper

## Professional Activities

### Prices, Fellowships and Awards

*Otto-Volk-Medaille*, University of Würzburg, for the master thesis.

*PhD fellowship at the University of Salerno for foreign students*

*PhD fellowship at La Sapienza di Roma* (rejected)

## SELECTED INVITED TALKS

*"Generalized Geometry in odd Dimensions"* at: Noncommutative Geometry and Higher Structures, September 2017,, Würzburg.

*"Generalized Contact Bundles"* at: VI Workshop on Poisson Geometry and Related Topics, June 2018, Sao Carlos.

*Existence and classification of quantum moment maps via formality* at: Bayerischzell Workshop, April 2019, Bayerischzell.

*Existence and classification of quantum moment maps via formality* at: Algebraic and Geometric Aspects in Quantum Field Theory, April 2019, Freiburg.

*"Moment maps, their quantization and reduction"* at: Higher Differential Geometry Seminar (Max-Planck-Institut für Mathematik), Max-Planck-Institut, June 26, 2019, Bonn.

*"Semi-local structure of Jacobi-related Geoemtries"* at: Workshop on Poisson and Contact Geometry, October/November, 2019, Timisoara.

*"Strong homotopy structure of Poisson reduction"* at: Friday Fish Seminar, November 2020, Utrecht/online. (`https://www.youtube.com/watch?v=ITre61nj_Rg`)

*"The homotopy class of twisted $L_\infty$-morphisms and the Kontsevich-Dolgushev Formality"* at: *Lie Theory and Poisson Geometry*, Jan 2022, CIRM.

*"The strong Homotopy Structure of Phase Space Reduction in Deformation Quantization"* at: *Noncommutative Geometry and higher structures*, June 2022, Scalea.

*"Deformations of Lagrangian Q-submanifolds"* at: Poisson Geometry, Higher Structures, and Deformation Theory, September 2023, Würzburg.

*"The quantization of momentum maps and adapted Formality morphisms"* at: North Atlantic Noncommutative Geometry seminar, November 2024, Warsaw/online. (`https://www.youtube.com/watch?v=Ys6jaabD23c`)

Moreover, I gave talks in local research seminars all around the world, like Göttingen, Rio de Janiero, Prague, Leuven, Würzburg, Copenhagen, Sao Paolo, Gothenburg and Freiburg.

## LONG TERM VISITS

IMPA (Rio de Janeiro, Brazil), April-June 2018. Host: Henrique Bursztyn.

*Research in Pairs at MFO*, April 2024. Together with Ryszard Nest, Boris Tsygan, Chiara Esposito.

## CONFERENCES, WORKSHOPS AND SEMINARS ORGANIZED

1. *"Formal Theory of PDEs"*, Mini-Workshop, November 2017, Salerno.
2. *Group seminar* Geometria@Unisa, weekly, Salerno.
3. *GEOQUANT 2021-International School and Conference*, August 2021, Freiburg.
4. *Higher Structures in Deformation theory*, Workshop, August/September 2022, Freiburg.

## ADMINISTRATIVE ASSIGNMENTS

Member of a hiring committee for a Junior Professor (Freiburg).

Member of Studienkommission (commission to discuss all questions related to teaching) (Freiburg)

## TEACHING EXPERIENCES

### *University of Freiburg*

**Lecturer/Organizer**

1. Seminar on Functional Analysis and Geometry (organizer with Sebastian Goette), winter term 2021/22
2. Seminar on universal properties (organizer with Mara Ungureanu), summer term 2022
3. Poisson geometry and deformation quantization (lecturer), winter term 2022/23
4. Seminar on Geometric Mechanics (organizer with Nadine Große), summer term 2023
5. Seminar on Operads (organizer with Thorsten Hertl), winter term 2023/24
6. Seminar on Foliations (organizer with Christian Ketterer), summer term 2024

**Supervision of PhD thesis**

1. A. Kraft: *Formality theory, deformation quantization and reduction* (PhD Thesis, University of Salerno. Principal advisor: Chiara Esposito)

**Supervision of Bachelor/Master thesis**

1. C. Balcerzak: *Normalformen in der Poisson-Geometrie* (Master Thesis, University of Freiburg)
2. C. Wetzel : *Freiheit und Dualität in der Operadentheorie* (Bachelor Thesis, University of Freiburg)

**Teaching Assistant**

1. Algebraic Topology (teaching assistant), winter term 2019/20
2. Algebraic Topology II (teaching assistant), summer term 2020
3. Seminar on Manifolds (teaching assistant), summer term 2020
4. Analysis III for Teachers (teaching assistant), winter term 2020/21
5. Functional Analysis (teaching assistant), summer term 2021
6. Special lecture on Manifolds (teaching assistant), summer term 2021
7. Analysis I (teaching assistant), winter term 2021/22
8. Analysis II (teaching assistant), summer term 2022
9. Topology (teaching assistant), summer term 2023
10. Algebraic Topology (teaching assistant), winter term 2023/24
11. Algebraic Topology II (teaching assistant), summer term 2024

*University of Würzburg*

1. JIM Erklärhiwi (tutor for bachelor students)
2. Ordinary Differential Equations for Teachers (Problem Session), Summerterm 2013
3. Mathematics I for Physics and Computer Sciences (Problem Session), Winterterm 2013/2014
4. Introduction to Differential Geometry (Problem Session),Summerterm 2014
5. Calculus I (Problem Session), Winterterm 2014/15
6. Calculus II (Problem Session), Summerterm 2015
7. Linear algebra I (Problem Session), Winterterm 2015/16
8. Differential Geometry (Problem Session), Winterterm 2015/16
9. Linear Algebra II (Problem Session), Summerterm 2016
10. Geometric Mechanics (Problem Session), Summerterm 2016

## RESEARCH

*Topics*

1. Jacobi/Contact, Poisson/symplectic and related Geometries
2. Deformation Quantization and Quantum Groups
3. Quantum and Classical Reduction
4. Graded (Differential) Geometry

## FULL LIST OF PUBLICATIONS

### PUBLISHED PAPERS

1. M. Cueca, J. Schnitzer. *Deformations of Lagrangian NQ-submanifolds*. Adv. Math. (2024), 458(A), 109952. (`https://www.sciencedirect.com/science/article/pii/S0001870824004675`)
2. J. Schnitzer. *No-go theorems for r-matrices in symplectic geometry*. Commun. Anal. Mech. (2024), 16(3), 448-456. (`https://www.aimspress.com/article/doi/10.3934/cam.2024021`)
3. A. Kraft, J. Schnitzer. *An introduction to $L_\infty$-algebras and their homotopy theory for the working mathematician*. Rev. Math. Phys. (2024), 36(01), 2330006. (`https://www.worldscientific.com/doi/abs/10.1142/S0129055X23300066`)
4. A. Kraft, J. Schnitzer. *The Homotopy Class of twisted $L_\infty$-morphisms*. Homology Homotopy Appl. (2024), 26(1), 201-227. (`https://link.intlpress.com/JDetail/1805805407719276545`)
5. C. Esposito, A. Kraft, J. Schnitzer. *The strong homotopy structure of BRST reduction*. Pacific J. Math. (2023), 325(1), 47-83. (`https://msp.org/pjm/2023/325-1/p03.xhtml`)
6. J. Schnitzer. *Normal Forms for Dirac-Jacobi bundles and Splitting Theorems for Jacobi Structures*. Math. Z. (2023), 303. (`https://link.springer.com/article/10.1007/s00209-023-03222-9`)
7. J. Schnitzer, A. Tortorella. *Weak Dual Pairs in Dirac-Jacobi Geometry*. Comm. Cont. Math. (2022), 25(8), 2250035. (`https://www.worldscientific.com/doi/10.1142/S0219199722500353`)

8. C. Esposito, A. Kraft, J. Schnitzer. *The strong homotopy structure of Poisson reduction*. J. Noncommutative Geom. (2022), 16(3), 927-966. (https://ems.press/journals/jncg/articles/7498766)

9. J. Schnitzer. *Characteristic (Fedosov-)class of a twist constructed by Drinfel'd*. Lett. Math. Phys. (2020), 110, 2353-2361. (https://link.springer.com/article/10.1007/s11005-020-01291-z)

10. J. Schnitzer, L. Vitagliano. *The Local Structure of Generalized Contact Bundles*. Int. Math. Res. Not. (IMRN) (2020), 20, 6871-6925. (https://academic.oup.com/imrn/article-abstract/doi/10.1093/imrn/rnz009/5345487)

11. J. Schnitzer. *Weakly Regular Jacobi Structures and Generalized Contact Bundles*. Ann. Global Anal. Geom. (2019), 56, 221-244. (https://link.springer.com/article/10.1007/s10455-019-09665-w)

12. C. Esposito, J. Schnitzer, S. Waldmann. *A Universal Construction of Universal Deformation Formulas, Drinfel'd Twists and their Positivity*. Pacific J. Math. (2017), 291(2), 319-358. (https://msp.org/pjm/2017/291-2/p03.xhtml)

### PREPRINTS

1. M. Dippell, C. Esposito, J.Schnitzer, S. Waldmann. *Global Homotopies for Differential Hochschild Cohomologies* https://arxiv.org/abs/2410.15903

### IN PREPARATION

1. M. Cueca, J.Schnitzer, K. Singh, C. Zhu. *Deformations of shifted Lagrangian submanifolds*

2. M. Dippell, C.Esposito, J.Schnitzer. *Quantization and Reduction of homogeneous star products on vector bundles*

3. C.Esposito, R. Nest, J.Schnitzer, B.Tsygan. *Quantization of Momentum maps via adapted Formalities*

### PRODUCTION OF TEACHING RESOURCES

Lecture notes for "Poisson Geometry and Deformation Quantization" (https://home.mathematik.uni-freiburg.de/geometrie/lehre/ws2022/DQ/pdf/skript.pdf)

## COLLABORATORS

Miquel Cueca, *University of Leuven*

Marvin Dippell, *University of Salerno*

Chiara Esposito, *University of Salerno*

Ryszard Nest, *University of Copenhagen*

Karandeep Singh, *Univeristy of Würzburg*

Alfonso Tortorella, *University of Salerno*

Boris Tsygan, *Northwestern University Chicago*

Luca Vitagliano, *University of Salerno*

Stefan Waldmann, *University of Würzburg*

## REFEREE FOR

1. Communications in Mathematical Physics
2. Bulletin for the London Mathematical Society
3. Journal of Geometric Mechanics
4. Advances in Theoretical and Mathematical Physics
5. Journal of Geometry and Physics
6. Advances in Mathematics
7. Symmetry, Integrability and Geometry: Methods and Applications

## MISCELLANEOUS

### *Tongues*

German (*Mother Tongue*)

English (Fluent)

Spanish (Basic)

French (Basic)

Italian (Basic)

Last updated: January 6, 2025