Prof. Dr. Céline M. Hadziioannou

Contact Information

Institute of Geophysics
University of Hamburg
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Citizenship French and Greek

Date of Birth April 29, 1983

Research Interests Ambient seismic noise and its sources; Ocean–Solid-Earth interaction, Seismic interferometry; Scattered wavefields; Coda waves; Monitoring time-dependent material changes; Emerging seismic sensing technology

Academic Appointments

University of Hamburg — Hamburg, Germany
Professor in Seismology — 2017 – present
(Parental leave: full time 03.2020 – 10.2020; part time 10.2020 – 04.2021)

Ludwig-Maximilians University Munich (LMU) — Munich, Germany
Leader of the Emmy Noether Research Group — 2013 – 2017
"The origin of Love waves in the ocean generated noise wave field"

Ludwig-Maximilians University Munich (LMU) — Munich, Germany
Postdoctoral Researcher — 2011 – 2013
Marie Curie QUEST ITN Postdoctoral fellow
Research: "Rotational motions, ambient noise and diffuse wavefields"

Education

Institut des Sciences de la Terre (ISTerre) — Grenoble, France
PhD, Seismology — 2007 – 2011
Research: "Seismic waves in complex media: measuring temporal velocity variations"
Advisors: Prof. Dr. Michel Campillo and Dr. Eric Larose

Universiteit van Utrecht (UU) — Utrecht, the Netherlands
Master of Science, Geophysics — 2005 – 2007

Rijksuniversiteit Groningen (RuG) — Groningen, the Netherlands
Bachelor of Science, Astrophysics — 2001 – 2005

Professional Service

Coordinator of EU Horizon 2020 MCSA-ITN project **"SPIN - Monitoring a Restless Earth"** — 2020 – 2025

Co-Coordinator (with Prof. Oliver Gerberding) of the **WAVE** initiative establishing a seismo-acoustic sensor network on the DESY campus — 2020 – present

Co-Lead (with Prof. Frank Krüger) of the **AnalogSeis** project aims at the preservation of German legacy seismogram archives — 2023 – 2026

External Review and Advisory Board + Ethics Advisor of EU Horizon Europe research infrastructure project **"Geo-INQUIRE"** — 2022 – present

External advisory board for the **"SeismoStorm"** project, which aims to make Belgian analog seismograms publicly available — 2021 – present

Member of **Department council** for the Department of Earth System Sciences, University of Hamburg — 2022 – present

Examination board of Geophysics Bachelor and Master programme — 2020 – present

Member of the committee for **Hamburg State Graduate Funding Program scholarships** — 2019 – present

Member of the **DEPAS pool** steering committee (German instrument pool for amphibian seismology) — 2018 – present

Member of the German Geophysical Society (DGG)

Equal opportunity committee 2018 – present

Mentor in the DGG+AGU Mentoring365 programme 2020 – present

Representative of LMU and the University of Hamburg 2015 – 2018
as associate partner in EU Horizon 2020 ITN "WAVES"
(coordinated by Dr. Lapo Bosci, UPMC Paris)

Work package leader in EU Horizon 2020 COST action "TIDES" 2014 – 2017
(coordinated by Dr. Andrea Morelli, INGV Bologna)

Project partner in the ERC project "ROMY" 2014 – 2019
(PI: Prof. Dr. Heiner Igel, LMU)

Member of LMU **University Research Board** 2014 – 2019

Scientific Community Service

Lead Organizer of the SPIN third **Workshop**, Pitlochry, UK 2023

Lead Organizer of the SPIN third **Short Course**, Pitlochry, UK 2023

Scientific Committee 6th IWGoRS **Workshop** on Rotational Seismology
in Paris, France 2022

Lead Organizer of the SPIN second **Workshop**, Carcans, France 2022

Lead Organizer of the SPIN second **Short Course**, Carcans, France 2022

Lead Organizer of the SPIN first **Workshop**, Tutzing, Germany 2021
(Online due to Covid)

Organization Committee COST-TIDES 4th Training school 2018
in Prague, Czech Rebpublic

Organization Committee AMÜSE PhD Conference in Hinterriss, Austria 2016

Organization Committee 4th IWGoRS **Workshop** on Rotational Seismology
in Tutzing, Germany 2016

Lead Organizer of **Workshop** "The Earth's Hum" in Munich 2014

Organization Committee for the 4th QUEST-ITN workshop 2013

Organization Committee Workshop "Noise and Diffuse Wavefields" 2012
in Neustadt an der Weinstrasse, Germany

Session Convener & Chair of the yearly Ambient Seismic Noise session 2012–2021
at EGU General Assembly, Vienna, Austria

Session Convener of Rotational Seismology session 2018–2019; 2022
at EGU General Assembly, Vienna, Austria

Session Convener & Chair of "Seismic Noise" session (invited chair) 2016
at the 76th yearly meeting of the German Geophysical Society (DGG)

Session Convener & Chair, AGU Fall Meeting, San Fransisco, USA 2015

Peer Reviewer for Research grants (French National Research Agency (ANR), Helmholtz Association, ETH Research commission, LMU Research Board) and for Scientific journals (GRL, GJI, JGR, J. Appl. Geophysics, J. of Seism., Nature Communications, Earth, Planets and Space, ...)

Honours & Awards

Emmy Noether research fellowship (DFG) 2013

Member of the LMU **Center for Advanced Studies** (CAS LMU) 2014 – 2017

Nominated by the DFG as member of **AcademiaNet** 2014
(profiles of leading women scientists)

Refereed Journal Publications

Citations ≈ 1900; h-index 17; Source: Google Scholar WvhdbrgAAAAJ

Students under my supervision are indicated with a red star*;
postdocs with two black stars **

– *S. Schippkus**, M. Safarkhani*, **C. Hadziioannou**,
Continuous isolated noise sources induce repeating waves in the coda of ambient noise correlations,
Submitted to Seismica

34. *C. Bruland*, **C. Hadziioannou**,
Gliding tremors associated with the 26 second microseism in the Gulf of Guinea,
Nature Communications Earth & Environment 4, 176 **2023**

33. *J. Pelaez Quiñones*, D. Becker**, **C. Hadziioannou**,
Beamforming of Rayleigh and Love waves in the course of Atlantic cyclones,
J. Geophys. Res. Solid Earth 128.2 e2022JB025050, preprint here **2023**

32. *S. Schippkus**, R. Snieder, **C. Hadziioannou**,
Seismic interferometry in the presence of an isolated noise source,
Seismica 1(1) (community-driven diamond open-access journal), preprint here **2022**

31. *C-M Liao, K. Hicke, F. Bernauer, H. Igel, **C. Hadziioannou**, E. Niederleithinger*,
Multi-Sensor measurements on a large-scale bridge model,
conference abstract at 5. Brückenkolloquium 2022 **2022**

30. *S. Schippkus**, **C. Hadziioannou**,
Matched field processing accounting for complex Earth structure: method and review,
Geophys. J. Int., 231(2) preprint here **2022**

29. *D. Essing*, V. Schlindwein, M. C. Schmidt-Aursch, **C. Hadziioannou**, Simon Stähler*
Characteristics of current-induced harmonic tremor signals in ocean bottom seismometer records, *Seismol. Res. Lett.* 92(5) **2021**

28. *R. Steinmann*, E. Larose, **C. Hadziioannou***
Effect of centimetric freezing of the near subsurface on Rayleigh and Love wave velocity in ambient seismic noise correlations *Geophys. J. Int.* 224.1 **2021**

27. *H. Igel, K. U. Schreiber, A. Gebauer, F. Bernauer, S. Egdorf, A. Simonelli, C-J. Lin, J. Wassermann, S. Donner, **C. Hadziioannou**, S. Yuan, A. Brotzer, J. Kodet, T. Tanimoto, U. Hugentobler, and J. P. R. Wells*
ROMY: A Multi-Component Ring Laser for Geodesy and Geophysics,
Geophys. J. Int. 225.1 **2020**

26. *D. Becker**, L. Cristiano, J. Peikert, T. Kruse, F. Dethof*, **C. Hadziioannou**, and T. Meier*, Temporal modulation of the local microseism in the North Sea,
J. Geophys. Res. Solid Earth, 125 (10) **2020**

25. ***C. Hadziioannou,*** *J. Salvermoser*, R. Steinmann*, L. Marten*, E. Niederleithinger*
Structural health monitoring meets ambient noise seismology
Sollicited extended abstract for EAGE "1st Conference on Geophysics for Infrastructure Planning Monitoring and BIM, 2019" (peer reviewed) **2019**

24. *M. van Driel, S. Ceylan, J. F. Clinton, D. Giardini, R. Weber, P. Lognonné, B. Banerdt, M. Drilleau, N. Murdoch, M. Panning, R. Garcia, D. Mimoun, M. Golombek, J. Tromp, M. Böse, I. Daubar, B. Kenda, A. Khan, L. Perrin, A. Spiga, M. S. Boxberg, M. Parath, M. Ditz, A. Lamert, T. Möller, S. Zhang, D. Ambrois, J. Chèze, F. Peix, H. Alemany, D. Mercerat, J. Balestra, A. Deschamp, C. Twardzik, L. Rolland, S. Mader*, L. Marten*, C. Schröer* , D. Becker**, T. Casademont*, F. Dethof*, D. Essing*, K. Grunert*, **C. Hadziioannou**, I. Hochfeld*, T. Kilchling*, F. Mehrkens*, P. Neumann*, R. Neurath*, R. Steinmann*, N. Trumpik*, P. Werdenbach-Jarklowski*, H. Hu, J. Li, Y. Zheng, E. Stutzmann, M. Schimmel, C. Hammer, B. Knapmeyer-Endrun, S. C. Stähler, N. Brinkman, S. Kedar, F. Euchner, B. Fernando, M. Tsekhmistrenko, K. Hosseini, C. Haindl, H. Godwin, A. Szenicer, T. Garth, and A. Allam*
Preparing for InSight: Evaluation of the Blind Test for Martian Seismicity
Seismol. Res. Lett. **2019**

23. *S. Stähler, M. Panning, **C. Hadziioannou**, R. Lorenz, S. Vance, K. Klingbeil, S. Kedar*
Seismic signal from waves on Titan's seas
Earth and Planetary Science Letters 520, 250–259 **2019**

22. *B. Chow*, J. Wassermann, B. Schuberth, **C. Hadziioannou**, S. Donner and H. Igel*
Love wave amplitude decay from rotational ground motions
Geophys. J. Int. 218(2) 1336–1347 **2019**

21. *L. Gualtieri, E. Stutzmann, C. Juretzek*[⋆]*,* ***C. Hadziioannou*** *and F. Ardhuin*
Global scale analysis and modeling of primary microseisms,
Geophys. J. Int. 218(1) **2019**

20. *D. Ziane*[⋆]*and* ***C. Hadziioannou***
The contribution of multiple scattering to Love wave generation in the secondary microseism, *Geophys. J. Int.* 217 (2) **2019**

19. *L. Krischer, S. Donner, M. van Driel ,* ***C. Hadziioannou****, M. Koymans, J. Leeman, F. Lindner, T. Megies, C. Nunn, A. Rijal, J. Salvermoser*[⋆]*, T. Taufiqurrahman, S. Wollherr, D. Vargas, J. Wassermann, F. Wölfl, C. Tape and H. Igel*
Seismo-Live: An Educational Online Library of Jupyter Notebooks For Seismology,
Seismol. Res. Lett., 89 (6) **2018**

18. *S. Hable, K. Sigloch, G. Barruol, S. C. Stähler,* ***C. Hadziioannou***
Clock errors in land and ocean bottom seismograms: High-accuracy estimation using multiple component noise cross-correlations, *Geophys. J. Int.*, 214(3) **2018**

17. *F. Lindner , C. Weemstra , F. Walter,* ***C. Hadziioannou***
Towards Monitoring the englacial fracture state using virtual-reflector seismology,
Geophys. J. Int., 214(2) **2018**

16. *C. Juretzek*[⋆]*,* ***C. Hadziioannou****,*
Linking source region and ocean wave parameters with the observed primary microseismic noise, *Geophys. J. Int.*, 211(3), p1640-1654, **2017**

15. *S. Donner, C.-J. Lin,* ***C. Hadziioannou****, A. Gebauer, F. Vernon, D. C. Agnew, H. Igel, U. Schreiber, J. Wassermann*,
Comparing direct observation of strain, rotation, and translation with array estimates at Pinon Flat Observatory, California, *Seismol. Res. Letters* 88 (4) **2017**

14. *J. Salvermoser*[⋆]*,* ***C. Hadziioannou****, S. Hable*[⋆]*, L. Krischer, B. Chow, C. Ramos, J. Wassermann, U. Schreiber, A. Gebauer, H. Igel*,
An event database for rotational seismology, *Seismol. Res. Letters* 88 (3), **2017**

13. *T. Tanimoto, C.-J. Lin,* ***C. Hadziioannou****, H. Igel, F. Vernon*,
Estimate of Rayleigh-to-Love wave ratio in the secondary microseism by a small array at Piñon Flat Observatory, California, *Geophys. Res. Lett.*, 43, **2016**

12. *C. Juretzek*[⋆]*,* ***C. Hadziioannou****,*
Where do ocean microseisms come from? A study of Love-to-Rayleigh wave ratios,
J. Geophys. Res. Solid Earth, 121, **2016**

11. *A. Obermann, T. Planès,* ***C. Hadziioannou****, M. Campillo*,
Lapse-time dependent coda wave depth sensitivity to local velocity perturbations in 3-D heterogeneous elastic media, *Geophys. J. Int.,* 207 (1), 59-66 **2016**

10. *C. Wu, A. Delorey, F. Brenguier,* ***C. Hadziioannou****, E. Daub, P. Johnson*,
Constraining depth range of S-wave velocity decrease after large earthquakes near Parkfield, California, *Geophys. Res. Lett.,* 43 **2016**

9. *J. Wassermann, A. Wietek*[⋆]*,* ***C. Hadziioannou****, H. Igel*,
Toward a Single Station Approach for Microzonation: Using Vertical Rotation Rate to Estimate Love-Wave Dispersion Curves and Direction Finding, *BSSA*, 106 (3) **2016**

8. *T. Tanimoto,* ***C. Hadziioannou****, H. Igel, J. Wassermann, U. Schreiber, A. Gebauer, B. Chow,*
Seasonal variations in the Rayleigh-to-Love wave ratio in the secondary microseism from co-located ring laser and seismograph, *J. Geophys. Res. Solid Earth*, 121, **2016**

7. *J. Salvermoser*[⋆]*,* ***C. Hadziioannou****, S. Stähler*,
Structural monitoring of a highway bridge using passive noise recordings from street traffic, *J. of the Acoust. Soc. Am.*, **138**, 3864 **2015**

6. *T. Tanimoto,* ***C. Hadziioannou****, H. Igel, J. Wasserman, U. Schreiber, A. Gebauer,*
Estimate of Rayleigh-to-Love wave ratio in the secondary microseism by co-located ring laser and seismograph, *Geophys. Res. Lett.*, 42 **2015**

5. ***C. Hadziioannou****, P. Gaebler, U. Schreiber, J. Wassermann, H. Igel,*
Examining ambient noise using co-located measurements of rotational and translational motion, *Journal of Seismology*, 16(4), 787–796, **2012**

4. ***C. Hadziioannou****, E. Larose, A. Baig, P. Roux, M. Campillo,*
Improving Temporal Resolution in Ambient Noise Monitoring of Seismic Speed,
J. Geophys. Res. 116: B0730, **2011**

3. *R. Weaver,* ***C. Hadziioannou****, E. Larose, M. Campillo,*
On the precision of noise correlation interferometry, *Geophys. J. Int.* 185, 1384–92, **2011**

2. ***C. Hadziioannou****, E. Larose, O. Coutant, P. Roux, M. Campillo,*
Stability of monitoring weak changes in multiply scattering media with ambient noise correlation: Laboratory experiments, *J. of the Acoust. Soc. Am.* 125, 3688–95, **2009**

1. *F. Brenguier, M. Campillo,* ***C. Hadziioannou****, N. Shapiro, R. Nadeau, E. Larose,*
Postseismic relaxation along the San Andreas fault at Parkfield from continuous seismological observations, *Science* 321, 1478–81, **2008**

Edited Books & Book chapters

S. Donner, H. Igel, ***C. Hadziioannou*** *and the ROMY Group*
Retrieval of the seismic moment tensor from joint measurements of translational and rotational ground motions, *In: "Moment Tensor Solutions - A Useful Tool for Seismotectonics" (Springer; Editor: Sebastiano D'Amico)*, **2018**

A. Schmidt, C. Sens-Schönfelder, ***C. Hadziioannou****, U. Wegler, E. Niederleitinger (Editors)*, Noise and Diffuse Wave Fields, Extended Abstracts of the Neustadt Workshop, *Mitteilungen Deutsche Geophysikalische Gesellschaft e.V.*, Sonderband IV/2012; **2012**

Outreach

SPIN Youtube channel

University of Hamburg – Seismology group's Youtube channel

S. Donner, A. Devdariani[*]*,* ***C. Hadziioannou****, K. Hannemann, R. Maaß*[*]*, T. Martin, K. Schwalenberg* 2022
Weiblich oder männlich, das ist hier die Frage! Wirklich? – Geschlechtsbezogene Statistiken der DGG – *DGG-Mitteilungen (Rote Blätter)*

A. Morelli, ***C. Hadziioannou****, C. Bean.* 2017
Time Dependent Seismology. *Impact 2017*, no. 1 p74-76,

Funding

BMBF collaborative project 2023 – 2026
"ErUM-WAVE": Anticipation of 3-dimensional wave fields
co-PI; UHH approximately 513 k€; my project ± 230 k€

BGR-Funded project **"AnalogSeis"**: 2023 – 2026
Preserving and digitizing German legacy seismogram archives
co-PI; approximately 547 k€;

Coordinator of H2020-MSCA-ITN **"SPIN"** (European Commission): 2021 – 2025
European Training Network with 15 PhD positions,
PI; approximately 4 M€; my project ± 505k€

BMBF collaborative project 2020 – 2023
"3G-GWD: Third Generation Gravitational Wave Telescope"
co-PI; UHH approximately 515k€; my project ± 205k€

BMBF Early detection of earthquakes and their consequences: 2020 – 2023
"**GIOTTO** – Building vibrations: structure monitoring with innovative sensor concept"
co-PI; approximately 800k€; my project ± 204k€

Participation in DFG-funded **Cluster of Excellence CliCCS** project C1 2019 – 2025
Sustainable Adaptation Scenarios for Urban Areas – Water from Four Sides
"Groundwater monitoring with ambient seismic noise", approximately 63 k€

University of Hamburg "Ideen- und Risikofonds" 2019
"Characterizing extreme weather events in the past using historical seismic records"; PI; 14.8 k€

University of Hamburg "Lehrlabor" project **"JUNOSOL"** 2018 – 2019
for developing innovative course material
PI; 1 year PhD position + 1 year student assistant; equivalent ± 37k€

Seed funding for assistance writing & coordinating ITN proposal (10 k€) 2018

Seed funding for assistance writing & coordinating ITN proposal (10 k€) 2017

University of Hamburg investment fund CliSAP–CliCCS: 2017
75 k€ + 1 year PhD position

Emmy Noether Fellowship (DFG): 2013 – 2018
"The origin of Love waves in the ocean generated noise wave field"
PI; approximately 860 k€

TEACHING

Supervision of 6 PhD students, 24 MSc projects, 8 BSc projects;
Collaboration with 3 Postdocs.

Earthquakes, 2021 – present
BSc/MSc course at Universität Hamburg (2 SWS)

Ambient Noise Seismology, 2021 – present
MSc course at Universität Hamburg (3 SWS)

Seminar Seismologie, 2017-2022
MSc course at Universität Hamburg (2 SWS)

Body & Surface wave Seismology, 2017 – present
MSc course at Universität Hamburg, lectures and exercises (2+2 SWS)

Seismologie, 2017 – present
BSc course (6. Sem) at Universität Hamburg, lectures and exercises (2+2 SWS)

Seismic noise spectra and polarisation, 2015
TIDES training school on seismic data, Bertinoro, Italy

Geophysikalische Datenanalyse, 2015
BSc course at LMU München, lectures and exercises (2+1 SWS)

Geophysical Data Acquisition and Analysis, 2013 – 2016
MSc course at LMU München, lectures and exercises (2+2 SWS)

Tutorial on Ambient noise correlations, 2013
QUEST Workshop

Introduction to Seismology; Signal Processing, 2012
Special course at ROSE school, Pavia, Italy

Applied Geophysics, 2011 & 2012
Exercises for BSc course at LMU München (in German, 2 SWS)

TOOLS

Rotational Seismology Event Database launched 2017
Online access to more than 17,000 Earthquake waveforms and processed plots from signals recorded simultaneously by the Wettzell ring laser and a nearby seismometer.

Seismo-Live (http://seismo-live.org/)
Contribution of teaching notebooks, e.g. ”Signal Processing”, ”Ambient Seismic Noise”, ”Rotational Seismology”

Selected Invited Presentations

Keynote Talk at the “Deutsche Physikerinnentagung” (German Conference of Women in Physics)	2022
Invited Lecturer at URBASIS-EU ITN Winter School on ”Urban Seismology” *(Cancelled due to COVID-19)*	
Invited Lecturer at Cargese Summer School ”Passive imaging and monitoring in wave physics: from seismology to ultrasound”	
Keynote Talk at the yearly meeting of the German Geophysical Society (DGG)	2021
Invited Talk at the EAGE Near Surface Geoscience Conference workshop ’Seismic Interferometry: Imaging and monitoring from Near-Surface to Civil Engineering applications’ *(Cancelled due to COVID-19)*	
Invited Talk & Panelist at the AGU Fall Meeting session “Observation of Rotation, Strain and Translation in Seismology: Applications, Instrumentation and Theory”	2020
Invited Lecturer at Cargese Summer School ”Ambient Noise Imaging and Monitoring”	2019
Keynote at the EAGE ”1st Conference on Geophysics for Infrastructure Planning Monitoring and BIM”	
Invited Talk at the University of Edinburgh, UK	
Invited Talk at University of Oxford, UK	
Invited Talk at Christian-Albrechts-Universität Kiel, Germany	2018
Invited Talk at Ruhr-Universität Bochum, Germany	
Invited Lecturer at Cargese Summer School ”Ambient Noise Imaging and Monitoring”	2017
Invited Talk at the Universtiy of Hamburg, Institute of Soil Science	
Trainer at the TIDES 2nd training school, Sesimbra, Portugal **Invited Talk** at WAVES workshop “Advances in Imaging”, Delft, the Netherlands	2016
Trainer at the TIDES 1st training school, Bertinoro, Italy **Invited Talk** at the Swiss Seismological Service, ETH, Zurich, Switzerland **Invited Talk** at Westfälische Wilhelms-Universität Münster, Germany	2015
Invited Talk at Utrecht University, Utrecht, the Netherlands	2014
Invited Talk at Géoazur, Sofia-Antipolis, France **Invited Talk** at ETH Zurich, Switzerland	2013
Invited Talk at Universität Leipzig, Germany	2011
Invited Talk at Quest workshop, Sardinia	2010

Languages

Written & spoken fluently:	English, Dutch, French
Conversational:	German
Basic knowledge:	Greek