# Prof. Dr. Céline M. Hadziioannou


**Contact Information**

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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; Noise correlation tomography

**Academic Appointments**

**University of Hamburg** — Hamburg, Germany
*Junior Professor in Seismology* — 2017 – present
*(Parental leave: 03.2020 – 10.2020)*

**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

**Honours & Awards**

**Emmy Noether** research fellowship (DFG) — 2013
Member of the LMU **Center for Advanced Studies** (CAS LMU) — 2014 – present
Member of **AcademiaNet** (Robert Bosch Stiftung) — 2014 – present

**Professional Service**

**Coordinator** of Marie Curie H2020-MSCA-ITN project **"SPIN - Monitoring a Restless Earth"** — 2020 – 2025
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
Member of LMU **University Research Board** — 2014 – 2019
**Representative of LMU and the University of Hamburg** as associate partner in Marie Curie ITN "WAVES" (coordinated by Dr. Lapo Bosci, UPMC Paris) — 2015 – 2018
**Work package co-chair** in Marie Curie COST action "TIDES" (coordinated by Dr. Andrea Morelli, INGV Bologna) — 2014 – 2017
**Collaborator** in the ERC project "ROMY" (PI: Prof. Dr. Heiner Igel, LMU) — 2014 – 2019

## Workshops & Conferences

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

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

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

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

**Programme Committee** COST-TIDES 4th Training school in Prague, Czech Rebpublic — 2018

**Organization Committee** AMÜSE PhD Conference in Hinterriss, Austria — 2016

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

**Organized** workshop "The Earth's Hum" in Munich — 2014

**Organization Committee** for 4th QUEST workshop — 2013

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

**Peer Reviewer** for Research grants (Helmholtz Association, ETH Research commission, LMU Research Board) and for Scientific journals (GRL, GJI, JGR, J. Appl. Geophysics, J. of Seism., Nature Communications)

## Refereed Journal Publications

Citations ≈ 1350; h-index 13; Source: Google Scholar

Students under my supervision are indicated with a red star*, postdocs with a black star*

**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**

## Non Peer-reviewed

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

## Funding

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

BMBF collaborative project 2020 – 2023
**"3G-GWD:** Third Generation Gravitational Wave Telescope"
co-PI; approximately 430 k€

BMBF Early detection of earthquakes and their consequences: 2020 – 2023
"**GIOTTO** – Building vibrations: structure monitoring with innovative sensor concept"
co-PI; approximately 170 k€

Participation in **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 + 4500€ for student assistants

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
BSc/MSc course at Universität Hamburg (2 SWS)

**Ambient Noise Seismology**, 2021
MSc course at Universität Hamburg (2 SWS)

**Seminar Seismologie**, 2017-2021
MSc course at Universität Hamburg (2 SWS)

**Surface & Body wave Seismology**, 2017-present
MSc course at Universität Hamburg, lectures and exercises (2+1 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”

## INVITED PRESENTATIONS

**Plenary Talk** at the yearly meeting of the German Geophysical Society (DGG) 2021
**Invited Lecturer** at Cargese Summer School
”Passive imaging and monitoring in wave physics:
from seismology to ultrasound”

**Invited Talk & Panelist** AGU Fall Meeting 2020
session “Observation of Rotation, Strain and Translation in Seismology:
Applications, Instrumentation and Theory”

**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

**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 2016
**Invited Talk** at WAVES workshop “Advances in Imaging”, Delft, the Netherlands

**Trainer** at the TIDES 1st training school, Bertinoro, Italy 2015
**Invited Talk** at the Swiss Seismological Service, ETH, Zurich, Switzerland
**Invited Talk** at Westfälische Wilhelms-Universität Münster, Germany

**Invited Talk** at Utrecht University, Utrecht, the Netherlands 2014

**Invited Talk** at Géoazur, Sofia-Antipolis, France 2013
**Invited Talk** at ETH Zurich, Switzerland

**Invited Talk** at Universität Leipzig, Germany 2011

**Invited Talk** at Quest workshop, Sardinia 2010

## LANGUAGES

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