

Christian Hallmann

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Research Interests

Dr. Hallmann's research focus lies on applying techniques of molecular and isotopic organic geochemistry to questions of Earth system evolution in order to improve our understanding of the reciprocal interaction between a co-evolving biosphere and environmental conditions. A large emphasis is placed on the Precambrian, where the questions of increasingly complex life are tied to the gradual establishment of a quasi-modern Earth system at the turn of the Phanerozoic. In this context, the timing and conditions of the emergence and subsequent radiation of early eukaryotes and the first metazoa represents the key focus. Hallmann combines state-of-the-art molecular geochemical techniques with detailed field work, isotope-chemostratigraphy and palynology in order to obtain a holistic view of studied intervals. Supportive research topics focus on molecular taphonomy, organic matter preservation and petroleum system geochemistry.

Personal Data

Born	July 30 th 1981 in Aachen, Germany
Citizenship	Netherlands and Germany (dual)
Languages	Dutch, German (native), English (fluent), French, Polish (moderate), Spanish, Russian (incipient)

Education

Ph.D.	Applied Chemistry	Curtin University, Perth, Australia	2009
Diplom (~M.Sc.) <i>Highest distinction</i>	Geology and Paleontology	University of Cologne, Germany	2004
Abitur	Grammar school	Bernardinus College, Heerlen, the Netherlands	1999

Positions Held

INDEPENDENT RESEARCH GROUP LEADER Max-Planck-Institute for Biogeochemistry	2012 – present
STAFF SCIENTIST & LECTURER University of Bremen Center for Marine Environmental Sciences (MARUM)	2012 – present
POSTDOCTORAL ASSOCIATE Massachusetts Institute of Technology (MIT) Department of Earth, Atmospheric and Planetary Sciences	2010 – 2012
AGOURON INSTITUTE FELLOW IN GEOBIOLOGY Massachusetts Institute of Technology (MIT) Department of Earth, Atmospheric and Planetary Sciences	2008 – 2010
EXPLORATION GEOCHEMIST (PART-TIME) Woodside Energy, Perth, Australia Exploration and New Ventures	2006 – 2007

Honours, Awards and Fellowships

Election as an independent 'free-floating' Max Planck Group leader	2011
Election as an Agouron Institute Geobiology Fellow	2009
Invitation to 'Fresh Science' (competition identifying new & exciting early-career science)	2008
TIGeR research grant for fieldwork (\$ 800 AUD)	2008
Best student poster award. Australian Organic Geochemistry Conference, Adelaide.	2008
Geoservices award. European Association of Organic Geochemists travel scholarship (€ 5000 Euro)	2007
AAPG Grant-in-Aid (\$ 2000 USD)	2007
PESA 'Highly Commended' Scholarship. Petroleum Exploration Society of Australia (\$ 2000 AUD)	2007
PESA Federal Postgraduate Scholarship (\$ 5000 AUD)	2006
Bernd Rendel Award for young investigators with great scientific potential. German Research Foundation.	2005
AAPG Horst and Jessie von Bandat Memorial Grant (\$ 2000 USD)	2005
Curtin University International Research Tuition Scholarship & Stipend Award	2005
Marie Curie pre-doctoral fellowship. European Commission.	2005
'IB-Groep' Study performance grant (1999–2003).	1999

Students and Researchers Supervised

B.SC. ADVISOR	(* denotes still active)
Jana Meixnerova	2015
M.SC. ADVISOR OR CO-ADVISOR	
Jessica Holterhof (co-advised with Prof. Kai-Uwe Hinrichs)	2013
Helena Dannert (co-advised with Georg Pohnert)	2013
Nadine Smit (co-advised with Florence Schubotz)	2015–2016
Mareike Neumann *	2015–2016
Alua Suleimenova *	2016
PH.D. ADVISOR	
Lennart van Maldegem *	2013–2017
POSTDOCTORAL ADVISOR	
Arne Leider *	2012–2016
Yosuke Hoshino *	2015–2016
Benjamin Bruisten * Agouron Institute postdoctoral fellow	2015–2017
Sebastian Näher DFG return fellowship	2016

Synergistic Activities

Reviewed manuscripts for:	Precambrian Research, Geology, Earth and Planetary Science Letters, ISME Journal, Chemical Geology, Organic Geochemistry, G-cubed, Space Science Reviews, Geochimica et Cosmochimica Acta, Geobiology, Anthropocene, PLOS One.
Reviewed proposals for:	NSF, NASA, Deutsche Forschungsgemeinschaft, Alexander von Humboldt Stiftung (Lynen & Georg Foster programs), Indo-US Science & Technology Forum, NERC, American Chemical Society (PRF).
Session leader: Gordon Research Seminar on Organic Geochemistry (Invited)	2012
Session convener: AGU Fall meeting. Four billion years of marine nitrogen cycling	2011
Session convener: AGU Fall meeting. Understanding early Neoproterozoic transitions	2011
Topical consultant: 'Welt der Wunder' German popular science magazine.	2009
Election panel for Curtin University Postdoctoral Fellowship (Invited)	2007
Assistant examiner of MSc candidates, University of Cologne	2007
Session judge (Geochemistry). AAPG International conference, Perth (Invited)	2006

Funding History

CURRENT FUNDING AS PRINCIPAL INVESTIGATOR

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|--|---------------------|-----------|
| 1. <i>Travel supplement to (4).</i>
—Agouron Institute | \$ 10,000 USD | 2016–2017 |
| 2. <i>Reevaluating the earliest traces of life on Earth.</i>
—German Research Foundation (DFG: #HA 7218/2-1) | € 294,000 EUR | 2015–2018 |
| 3. <i>Neoproterozoic transition to a modern world.</i>
—Max Planck Society ‘free floating’ group leader award | ca. € 2,000,000 EUR | 2012–2017 |

CURRENT FUNDING AS CO-INVESTIGATOR

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| 4. <i>Proposal to drill the GOE in the Duitsland/Rooihogte Formation and biomarkers in the 2.53 Ga Gamohaan-Lime Acres carbonates of the Transvaal Supergroup, South Africa</i>
—Agouron Institute
—Co-I with N. Beukes (Uni Johannesburg), D. Sumner (UC Davis), W. Fischer (CalTech) | \$ 347,511 USD | 2016–2017 |
| 5. <i>Neoproterozoic nitrogen cycling.</i>
—LabExMer travel fund (University of Brest) via PI: P. Sans-Joffre | € 4,100 EUR | 2016 |

PREVIOUS FUNDING AS PRINCIPAL INVESTIGATOR

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| 6. <i>Incentive fund for field work in the Urals, Russia</i>
—MARUM, University of Bremen | € 15,000 EUR | 2013 |
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PREVIOUS FUNDING AS CO-INVESTIGATOR

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|---|----------------|-----------|
| 7. <i>Benchmarking thermal desorption and pyrolysis of organic matter on the SAM instrument suite</i>
—NASA, MSL Participating Scientist Program
—PI: Roger Summons (MIT) | \$ 563,732 USD | 2011–2014 |
| 8. <i>Coordinated micro-analytical approaches for in-situ analysis of Paleoproterozoic biological carbonaceous particles</i>
—NASA Astrobiology Institute (NAI): Director’s Discretionary Fund (DDF)
—PI: Dominic Papineau (Boston College) | \$ 154,065 USD | 2010–2013 |

Public Outreach

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|---|------|
| Popular article: ‘ <i>Drilling deep into Earth’s history</i> ’: https://www.mpg.de/9788987/W005_environment-climate-070-077.pdf | 2015 |
| Video interview on gas chromatography and mass spectrometry. MIT Museum, Cambridge, MA. | 2011 |
| ‘ <i>Tell your story</i> ’ workshop to connect teachers and scientists. | 2011 |
| MIT +150 open house. Geological time-walk tours. | 2011 |
| ‘ <i>Mars weekend</i> ’ at the Museum of Science, Boston. | 2011 |

Additional Training Received

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|--|------|
| Management development program— 1. Leadership, communication, impact (Cevey Consulting) | 2012 |
| Management development program— 2. Personalities, potentials, performance (Cevey Consulting) | 2012 |
| Microbial physiology course (MIT: Magasanik, Newman, Walker) | 2008 |
| Introduction to Project Management course (Australian Technology Network) | 2007 |
| Leadership and Communication course (Australian Technology Network) | 2006 |
| Fault seal analysis short course (Badley Geoscience) | 2006 |
| Basin modeling course (University of Bonn / IES) | 2003 |

Teaching Experience

2016 summer semester

Molecular Geobiology (05-GEO-2-K8-1) University of Bremen.
—Five modules taught. Shared course with Boetius, Kasemann, Schubotz.

2015 summer semester

Molecular Geobiology (05-GEO-2-K8-1) University of Bremen.
—Four modules taught. Shared course with Boetius, Kasemann, Schubotz, Versteegh.

2014 summer semester

Molecular Geobiology (05-GEO-2-K8-1) University of Bremen.
—Four modules taught. Shared course with Boetius, Kasemann, Schubotz, Versteegh.

2013 summer semester

Molecular Geobiology (05-GEO-2-K8-1) University of Bremen.
—Four modules taught. Shared course with Boetius, Kasemann, Schubotz, Versteegh.

Biosignatures: NASA summer school on Astrobiology, UIMP Santander, Spain
—Week long program shared by: V. Parro, R. Blankenship, D. Sumner and C. Hallmann
—<http://astrobiology.nasa.gov/nai/uimp/2013-santander-summer-school-biosignatures-fingerprints-life/>

2010 fall semester

Molecular Biogeochemistry (12.158 / 12.458) Massachusetts Institute of Technology
—Co-instructed: Roger Summons, Christian Hallmann, Julio Sepulveda
—<http://dspace.mit.edu/handle/1721.1/75792>

2009 fall semester

Molecular Biogeochemistry (12.458) Massachusetts Institute of Technology
—Repeated guest instructor along Prof. Roger Summons

Students mentored 2008–2012

PhD students: Christian Illing, Katherine French, Emily Matys
BSc students: Katherine Thomas, Laurie Hakes, John Hall, Matthieu Gauthier, Sharon Newman

pre-2008

Repeated substitute lecturer in organic geochemistry courses, University of Cologne (2007)
Laboratory demonstrator for organic geochemistry courses, University of Cologne (2003–2004)
Tutor in French literature, Bernardinus College (1997–1998)

Field Work & Sampling Parties

ORGANIZER / LEADER

Griqualand, South Africa. Drilling 2 ultra-clean holes into Archean carbonates. Science sampling lead (2 weeks)	2016
McArthur Basin, NT, Australia. Paleoproterozoic depositional sequence. Co-leader (10 days)	2015
NTGS core library, Darwin, Australia. Five Mesoproterozoic cores (1 week)	2015
GSWA core library, Perth, Australia. One Neoproterozoic core (1 week)	2015
Petershill Fm., Bathgate, UK. Carboniferous. Leader (3 days)	2015
Gornostakh anticline, Yakutia, Russia. Mesoproterozoic. Co-leader (18 days)	2014
Chuar Group, Arizona, USA. Early Neoproterozoic depositional sequence. Leader (10 days)	2014
Jammu/Kashmir and lesser Himalaya, India. Late Neoproterozoic depositional sequence. Co-leader (3 weeks)	2013
Pilbara Craton Drilling project, Australia. Drilled 3 ultra-clean holes into Archean shales. Science sampling lead (6 weeks)	2012
Belcher Islands, Canada. Paleoproterozoic carbonate platform. Co-leader (2 weeks)	2011

PARTICIPANT

Southern Urals, Russia. Meso- & Neoproterozoic. Participant: 2 weeks.	2013
Cordoba region & Rio Tinto, Spain. Cambrian & recent Mars-analog. Participant (2 weeks)	2010
Three Gorges area, China. Neoproterozoic & P/T. Participant (1 week)	2009

(Continued: Field work & sampling parties – Participant)

Newfoundland, Canada. Ediacara biota. Participant (3 days)	2009
Pilbara Craton, Australia. Archean BIF & Stromatolites. Student participant (3 weeks)	2008
Dharwar Craton, Southern India. Archean metamorphic terranes. Student participant (2 weeks)	2003
Allgäu Alps, Germany. Mesozoic. Geological mapping. Student participant (2 weeks)	2003
Menorca Island, Spain. Phanerozoic geological framework. Student participant (1 week)	2001
Dolomites, Italy. Permo-triassic. Geological mapping. Student participant (1 week)	2000

Several 1- and 2-day excursions within Germany are not individually listed.

1999–2005

Publications

IN PREPARATION (in an advanced state – draft available upon request)

Denotes Hallmann-Lab member

31. Papineau D, Strother P, Bleeker W, Fogel M, She, Z., Hallmann C, Swarth, C (in preparation) Microbial organic matter in Late Paleoproterozoic hydrothermal deposits.
30. Van Maldegem L, Sans-Joffre P, Wolkenstein K, Weijers J, Wörmer L, Nath N, Hefter J, Strother P, Elie M, Schouten S, Ghorozhanin V, Kuznetsov N, Hoshino Y, Pringle P, Elvert M, Mollenhauer G, Hallmann C* (in preparation) Intense heterotrophy at the Marinoan deglaciation
29. Hallmann C*, Grosjean E, Love G, Grotzinger J, Summons RE (in preparation) Biological pumping, chemocline instability and the extinction of Cloudinia in the terminal Ediacaran of Oman.
28. Van Maldegem L, Sans-Joffre P, Strother P, Schefuss E, Bauersachs T, Schwark L, Hallmann C* (in preparation) Redox and community control on Neoproterozoic carbon isotope systematics.
27. Hallmann C, Grosjean E, Kashiyama S, Ohkouchi N, Summons RE (in preparation) Ammonium overturn at the Ediacaran/Cambrian boundary.
26. Meixnerova J, Leider A, Schumacher T, Strother P, Hallmann C (in preparation) Molecular taphonomy of carbonate concretions in the 1.1 Ga Nonesuch Formation..

IN REVIEW OR REVISION

25. Illing CJ, Hallmann C, Gupta NS, Scott AC, Collinson M, Espidel Y, Pancost RD, Briggs DEG, Strauss H, Summons RE (in review) Heterogeneity of free and occluded bitumen in a natural maturity sequence from Oligocene Lake Enspel. *Geochimica et Cosmochimica Acta*.
24. Luo G, Summons RE, Xie S, Hallmann C (in revision) Differential preservation of hydrocarbons in ~1.5 Ga pyrite concretions and shales: evaluation of taphonomic niche potential. *Precambrian Research*.

2016

23. Ferralis N, Matys E, Knoll AH, Hallmann C, Summons RE (2016) Rapid, direct and non-destructive assessment of fossil organic matter via microRaman spectroscopy. *Carbon* 108: 440–449.
22. Leider A, Schumacher TC, Hallmann C* (2016) Enhanced procedural blank control for organic geochemical studies of critical sample material. *Geobiology* 14:469–482

2015

21. Feulner G*, Hallmann C*, Kienert H (2015) Snowball cooling from algal rise. *Nature Geoscience* 8: 659–662.
20. Williford KH, Ushikubo T, Lepot K, Kitajima K, Hallmann C, Spicuzza MJ, Kozdon R, Eigenbrode JL, Summons RE, Valley JW (2015) Carbon and sulfur isotopic signatures of ancient life and environment at the microbial scale: Neoproterozoic shales and carbonates. *Geobiology* 14: 105–128.
19. Huang Y, Aponte JC, Zhao J, Tarozo R, Hallmann C (2015) Hydrogen and carbon isotopic ratios of polycyclic aromatic compounds in two CM2 carbonaceous chondrites and implications for prebiotic organic synthesis. *Earth and Planetary Science Letters* 426: 101–108.

18. Hallmann C* (2015) Von Bakterien zum Menschen: Die Rekonstruktion der frühen Evolution mit fossilen Biomarkern [From bacteria to humans: reconstructing early evolution with fossil biomarkers]. In: *Max Planck Jahrbuch 2014 / 2015*.
17. French K, Hallmann C, Hope J, Hoshino Y, Peters C, George S, Buick R, Brocks JJ, Summons RE (2015) Reappraisal of hydrocarbon biomarkers in Archean rocks. *Proceedings of the National Academy of Sciences USA* 112: 5915–5920
16. Luo G, Hallmann C, Xie S, Ruan X, Summons RE (2015) Comparative microbial diversity and redox environments of black shale and stromatolite facies in the Mesoproterozoic Xiamaling Formation. *Geochimica et Cosmochimica Acta* 151: 150–167.

2014

15. Illing CJ, Hallmann C, Strauss H, Summons RE (2014) Air-borne hydrocarbon contamination from laboratory atmospheres. *Organic Geochemistry* 76: 26–38.
14. Aponte JC, Tarozo R, Alexander MR, Alexander CM, Hallmann C, Summons RE, Huang Y (2014) Chirality of meteoritic free and IOM-derived monocarboxylic acids and implications for prebiotic organic synthesis. *Geochimica et Cosmochimica Acta* 131: 1–12.
13. Rooney AD, Macdonald FA, Dudas FÖ, Strauss JV, Hallmann C, Selby D (2014) Re-Os geochronology and coupled Os-Sr isotope constraints on the Sturtian snowball Earth. *Proceedings of the National Academy of Sciences USA* 111: 51–56.
12. Hallmann C*, Summons RE (2014) Paleobiological clues to early atmospheric evolution. In: Canfield D, Kasting J, Farquhar J (Eds) *Treatise on geochemistry, 2nd Ed, Vol. 6: The atmosphere – history*. Elsevier. pp 139–155.
11. Summons RE, Hallmann C (2014) Organic geochemical signatures of early life on earth. In: Falkowski P, Freeman K (Eds) *Treatise on geochemistry, 2nd Ed, Vol. 12: Organic Geochemistry*. Elsevier. pp. 33–46.

2013

10. Creveling JC, Knoll AH, Fernandez-Remolar D, Bergmann KD, Gill BC, Garcia-Bellido DC, Menendez S, Rodriguez M, Ehlmann BL, Stack KM, Hallmann C, Amils R, Grotzinger JP, Abelson J (2013) Geobiology of a lower Cambrian carbonate platform, Pedroche Formation, Spain. *Paleogeography, Paleoclimatology, Paleoecology* 386: 459–478.
9. Sherry A, Gray ND, Rowan AK, Aitken CM, Jones DM, Röling W, Hallmann C, Larter SR, Bowler B, Head I (2013) Biodegradation of crude oil under sulfate-reducing conditions leads to only modest enrichment of recognized sulfate-reducing taxa. *International Biodeterioration and Biodegradation* 81: 105–113.

pre–2012

8. Hallmann C*, Kelly AE, Gupta SN, Summons, RE (2011) Reconstructing deep-time biology with molecular fossils. In: Laflamme M, Schiffbauer JD, Dornbos SQ (Eds) *Topics in Geobiology, Vol 36: Quantifying the evolution of early life*. Springer. pp 355–401.
7. Hallmann C*, Grey K, Webster LJ, McKirdy DM, Grice K (2010) Molecular signature of the Neoproterozoic Acraman impact event. *Organic Geochemistry* 41: 111–115.
6. Grice K, Lu H, Atahan P, Asif M, Hallmann C, Greenwood P, Maslen E, Tulipani S, Williford K, Dodson J (2009) New insights into the origin of perylene in geological samples. *Geochimica et Cosmochimica Acta* 73: 6531–6543.
5. Maslen E, Grice K, Gale JD, Hallmann C, Horsfield B (2009) Crocetane: a potential marker of photic zone euxinia in thermally mature sediments and crude oils of Devonian age. *Organic Geochemistry* 40, 1–11.
4. Hallmann C*, Schwark L, Grice K (2008) Community dynamics of anaerobic bacteria in deep petroleum reservoirs. *Nature Geoscience* 1: 588–591.
3. Hallmann C*, van Aarssen BGK, Grice K (2008) Relative efficiency of free fatty acid butyl esterification. Choice of catalyst and derivatization procedure. *Journal of Chromatography A* 1198–1199: 14–20.
2. Hallmann C*, Arouri KR, McKirdy DM, Schwark L (2007) Temporal resolution of an oil charging history—A case study of residual oil benzocarbazoles from the Gidgealpa Field. *Organic Geochemistry* 38: 1516–1536.
1. Hallmann C*, Arouri KR, McKirdy DM, Schwark L (2006) A new perspective on exploring the Cooper/Eromanga petroleum province—Evidence of oil charging from the Warburton basin. *APPEA Journal* 46: 261–282.

Invited Presentations

2016

37. TBA. Invited talk at Heidelberg Initiative for the Origins of Life. Scheduled for 30 November 2016.
36. TBA. Invited talk at the Geo Colloquium, Göttingen University. Scheduled for 23 November 2016.
35. “Biomarker clues to the early evolution of eukaryotes” Geochemistry Seminar at the Max-Planck-Institute for Marine Microbiology. Bremen, 5 July 2016.
34. “Biogeochemistry and paleoclimatology in deep time” Invited talk at Earth System Research Partnership (ESRP) meeting. Mainz, Germany, 1–2 June 2016.
33. “Rewriting the early record of life” Invited plenary talk at LeadNet-meeting. Berlin, Germany, 30–31 May 2016.
32. “*Reconstructing the evolution of life and environments on the early Earth with biomarker hydrocarbons*” Sino-German Frontiers of Science (SinoGFOS) symposium organized by the Chinese Academy of Sciences and the Humboldt Foundation. Shenzhen, China, 7–10 April 2016.

2015

31. “A molecular biomarker perspective on eukaryotic evolution” Invited seminar: Russian Academy of Sciences and Gubkin University. Moscow, Russia, 9 February 2015.
30. “Environmental consequences of early eukaryotic evolution” Invited seminar: XX, University of Brest. Brest, France, 20 November 2015.
29. “xx” Science Advisory Board meeting, Max-Planck-Institute for Biogeochemistry. Jena, Germany, 14 January 2015.
28. “Clean core drilling for Archean hydrocarbon geochemistry: Lessons from” Agouron Institute, AIDP drilling project review meeting. Pasadena, USA, 30–31 March 2015.

2014

27. “Steroid biomarkers throughout the Precambrian yield a fresh look on eukaryotic evolution” Origin of life symposium. University of Göttingen and Göttingen Academy of Sciences. Göttingen, Germany, 16–19 October 2014.
26. “The early evolution of life on Earth. Biomarkers and isotopes as a tool to study the rise of oxygenic photosynthesis. Invited seminar: University of Hannover (Prof. Heimhofer). Hannover, Germany, 23 June 2014.
25. “A molecular view on the early evolution of eukaryotes” Invited talk at Institutskolloquium (Prof. Rethemeyer). Cologne, Germany, 9 December 2014.
24. “The early evolution of life on Earth. Biomarkers and isotopes as a tool to study the rise of organismic complexity” Invited colloquium, University of Bremen. Bremen, Germany, 15 May 2014.
23. “The precambrian biomarker record of emerging eukaryotes: A shift from the Archean to the Neoproterozoic”. BGC seminar, Max Planck Institute for Biogeochemistry. Jena, Germany, 16 October 2014.

2013

22. “Hopane, where art thou? The search for Earth’s oldest biomarker hydrocarbons” Invited seminar: University of Tübingen (Prof. Andreas Kappler). Tübingen, Germany, 23 January 2013.
21. “Fossil sedimentary lipids and the early evolution of life on Earth” Symposium: Origins of life – At the crossroads between biochemistry and astrophysics. Max-Planck-Institute for molecular cell biology and genetics. Dresden, Germany, 10–12 July 2014.
20. “The great oxidation event and emerging aerobiosis – what can molecular fossils tell us?” Invited seminar: Presidency University (Prof. Das). Kolkata, India, 9 May 2013.
19. “Lipid biomarkers—indicators for biological diversity, depositional environments and past climates”. Invited talk at Astrobiology Summer School (NASA Astrobiology Institute). Santander, Spain, 23–28 June 2013.
18. “Fossil biomarker hydrocarbons—Transformation during catagenesis and the record of early life on Earth” Invited talk at Astrobiology Summer School (NASA Astrobiology Institute). Santander, Spain, 23–28 June 2013.

2012

17. “Syngenetic and contaminant lipids in sediments of the Hamersley Group (core ABDP-9)” Agouon Institute biomarker meeting (preparation for ultra clean core drilling). Riverside, USA, 11–14 March 2012.
16. “Fossil lipids as a key to the early evolution of life”. Evolution of systems workshop at LeadNet meeting. Berlin, Germany, 8–9 May 2012.
15. “Precambrian lipidomics” Invited talk at Schierwater Lab-meeting, University of veterinary medicine, Hannover. Hannover, Germany, 20 November 2012.
14. “Precambrian lipidomics” Invited talk at MARUM Retreat. Farge, Germany, 15–16 May 2012.

2011

13. “Archean fossil lipids. Sequential extraction reveals evidence for eukaryotes and oxygen fluxes”. Invited seminar: Rutgers University (Prof. Falkowski). New Brunswick, USA, September or October 2011.
12. “The search for (ancient) life on Earth and Mars” Invited public lecture during “Mars weekend” at the Museum of Science, Boston. Boston, USA, 4–5 June 2011.
11. “Fossil sedimentary lipids. Archiving the dawn of life” Invited speech at Max Planck Society CPT Section meeting general assembly. Berlin, Germany, July 2011.
10. “Precambrian lipidomics and the early evolution of life” MPRG selection symposium at the Max Planck Institute for Iron Research. Düsseldorf, Germany, February 2011.
9. “Biogeochemistry of the Cryogenian Coppercap Formation” Invited talk at the NASA Astrobiology Institute CAN-4 team meeting, Harvard University. Cambridge, USA, March 2011.

2007–2010

8. “Biomarker evidence for Archean oxygen fluxes” Invited lecture at AGU fall meeting, session B52B. San Francisco, USA, 13–17 December 2010.
7. “Ice ages, impacts and the rise of complexity” Invited talk at Harvard Geobiology Symposium: Advent of complex life and the Neoproterozoic-Cambrian transition. Cambridge, USA, 1st May 2010.
6. “Oxygen and early life: eukaryotes and euxinia before the great oxidation event” MIT chemical oceanography seminar. Cambridge, USA, October 2009.
5. “Early life on Earth—Archean molecular fossils tell an oxygen story”. Invited seminar at Brown University (Dr J. Tierney). Providence, USA, September 2008.
4. “Bacterial community dynamics in the deep subsurface. Insights from microbial membrane lipids” Gordon Research Conference on Organic Geochemistry. Holderness, NH, USA, 3–8 August 2008.
3. “Microbial population dynamics in deep oil reservoirs: Insights from bacterial membrane lipids” Invited talk at Curtin University Chemistry departmental seminar. Perth, Australia, June 2007.
2. “Phospholipid indicators for dynamics of petroleum-reservoir microbial communities: Petroleum reservoirs as natural bioreactors” Invited talk at 17th Goldschmidt conference, session S50. Cologne, Germany, 19–24 August 2007.
1. “Polar petroleum compounds: Application and concepts”. Invited talk at PESA Technical Luncheon. Perth, Australia, 2006.

Active Memberships

- NASA Astrobiology Institute CAN-4 and CAN-6: Massachusetts Institute of Technology Team
- Geochemical Society
- European Association of Organic Geochemists