

## Sebastien Rauch

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Sebastien Rauch's research expertise lies in the area of urban environments and systems. His work deals more specifically with urban contamination, sustainable urban development, and urban water management. This research is done in an international context with research periods spent in France, Spain, the US and South Africa. He is a management committee member and working group leader of the EU Cost Action network on Technology Critical Elements. He is the organizer of the Urban Environment Symposium series and has organized several workshops in Sweden and abroad. Sebastien Rauch is also actively involved in education. He is the Director of the Master Programme Infrastructure and Environmental Engineering and is leading the Infrastructure Profile in the reorganization of Civil Engineering programme at Chalmers. His teaching activities include courses and student supervision in the areas of urban systems, urban pollution, water resource management and sustainable development.

### Education and qualifications

2005 Docent in Civil and Environmental Engineering, Chalmers (qualification as Associate Professor including research and pedagogical qualifications)  
2001 Doctor of Philosophy (PhD) in Environmental Science and Civil Engineering, Chalmers; Thesis: Environmental relevance of platinum group elements; Supervisor: G. Morrison  
1998 Master of Science in Engineering (MScEng) in Applied Environmental Measurement Techniques, Chalmers University of Technology (obtained with distinction)  
1995 Maitrise in Risk Management & Environment, Université de Haute-Alsace (France)

### Professional appointments

2016-present Professor, Civil and Environmental Engineering, Chalmers  
2014-present Master Programme Director, Infrastructure and Environmental Engineering Programme, Chalmers  
2010-2016 Associate Professor, Civil and Environmental Engineering, Chalmers  
2008-2010 Project Leader, Civil and Environmental Engineering, Chalmers  
2004-2008 Assistant Professor (Forskarsassistent), Water Environment Technology, Department of Civil and Environmental Engineering, Chalmers  
2002-2004 Postdoctoral Fellow, R.M. Parsons Laboratory, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology (USA). Faculty host: H.F. Hemond, M.J. Molina.  
2001-2002 Research Assistant, Water Environment Technology, Water Environment Technology, Civil and Environmental Engineering, Chalmers  
1998-2001 Doctoral student, Water Environment Technology, Civil and Environmental Engineering, Chalmers

## **Parental leave**

On leave 60%, May-August 2007

## **Tutoring experience**

Supervision of 4 doctoral students at Chalmers as main supervisor

- J. Knutsson, Chalmers, PhD 2013
- I. Helgegren, Chalmers, PhD in progress (Mid-seminar 2017, PhD expected 2020)
- C. Cossio, Chalmers, PhD in progress (supervised 2014-2018; Mid-seminar 2017)
- Z. Sun, Chalmers, PhD in progress (Licentiate 2017, PhD expected 2020)

Supervision of 6 doctoral students at Chalmers as assistant supervisor

- K. Ek, Chalmers, PhD 2004
- K. Runeberg, Chalmers, Lic. 2005
- Y. Kalmykova, Chalmers, PhD 2009
- N. Dias Ferreira Da Silva, Chalmers, PhD 2013
- M. Mangold, Chalmers, Lic. 2013
- A. Norén, Chalmers, PhD in progress

Supervision of external doctoral students

- G. Carugati, University of Como, Italy, PhD 2008 (supervision during research period at Chalmers)
- K. Folens, University of Ghent, Belgium, PhD 2017 (supervision during short term scientific mission, funded by COST Action network TD1407)
- M. Hacker, University of Washington, USA. PhD 2018 (supervision during one year stay at Chalmers, funded by Valle Scholarship)

Supervision of 46 students in MSc thesis projects and 51 students in BSc thesis projects

## **Participation in PhD examination**

Examiner

- E. Szabo, Chalmers, PhD 2017
- S. Saheb Alam, Chalmers, Lic. 2016, PhD 2018
- P. Gontia, Chalmers, PhD expected 2019 (examiner until 2018)
- J. Patricio, Chalmers, Lic. 2017, PhD expected 2020
- A. Lavers, Chalmers, Lic. 2018, PhD expected 2020
- J. Ekholm, Chalmers, PhD expected 2022

Participation in PhD committees

- B. Stolpes, Göteborg University, 2006
- A. De Boni, University of Venice, Italy, 2007
- Y. Volchko, Chalmers, 2014
- H. Strömberg, Chalmers, 2015
- L. Martin, Institut National de Physique du Globe, France, 2017 (rapporteur)
- M. Abdou, Université de Bordeaux, France, 2018 (rapporteur)
- M. Omrani, Ecole Centrale (IFFSTAR), Nantes, France, 2018 (rapporteur)

Faculty opponent at Licentiate and PhD defenses

- M. Lagerström, Stockholm University, Lic. 2016
- T. Suoranta, University of Oulu, Finland, PhD 2016

## **Current and recent teaching activities**

- Master Programme director, MSc Infrastructure and Environmental Engineering (2014-present)

- Main responsible teacher and examiner, Tätorter Funktioner och Utformning (Urban Spaces and Functions) (BOM210, 6 ECTS, ca. 250 students/year), 2016-present.
- Teacher and co-examiner, Infrastructure and Urban Systems (ACE095, 7.5 ECTS, ca. 60 students/year), 2018-present.
- Main responsible teacher and examiner, Water Resources and Environment (BOM150, 7.5 ECTS, ca. 70 students/year), 2010-2017.

### **Networks in academia and industry**

EU Cost Action network on Technology Critical Elements, Management Committee member and leader of working group 2: Environmental pathways (funded by the EU for 2014-2019)

Swedish Network on Water and Sanitation in Peri-urban Areas, member (supported by SIDA)

Participation in Swedish Academic Collaboration Forum (supported by STINT, 2015-2016)

### **Languages**

French: native

English: fluent

Swedish: conversational

Spanish: conversational

### **Selected awards and assignments**

Wallenberg Foundation Fellowship 2002-2007

Invited expert, International Atomic Energy Agency, Vienna, December 2001.

Invited expert, International Water Association, The Hague, July 2013

Workshop and conference organization

- Urban Environment Symposium (Oslo, June 2015; Karlsruhe, Sept. 2012; Göteborg, June 2010; Madrid, June 2008; Nicosia, June 2006) – Symposium Coordinator and main organizer
- ICOBTE, Zurich, Jul. 2017 – Co-convener of special session with B.J. Groenenberg (Waningen), A. Voegelin (EAWAG), M. Fillela (Geneva) and K. Scheckel (USEPA).
- Urban Labs workshop for Embrace the Water IWA Conference, Gothenburg, June 2017 – Co-organiser of multi-disciplinary workshop for young professionals.
- Goldschmidt Conference (Prague, Aug. 2015) – Co-convener of session 4e (Emerging inorganic contaminants) with S.J.O. White (Harvard) and R. Kägi (EAWAG)
- Goldschmidt Conference (Boston, Aug. 2018) – Co-convener of session 13m (Emerging inorganic contaminants) with S.J.O. White (USGS), E. Sunderland (Harvard), S. Datta (U. Kansas) and R. Hon (Boston College)
- Goldschmidt Conference (Barcelona, Aug. 2019) – Co-convener of session 13o (Emerging inorganic contaminants) with M. Fillela (USGS), Y. Fujita (Livermore National Lab), I. Dror (Weizmann Institute), C. Hissler (Luxembourg Institute of Science and Technology) and J.C. Silva-Tamayo (Antonio Nariño University, Colombia)
- AGS Annual Meeting 2011 (Göteborg, Jan. 2011) – Executive Committee
- Workshops on Sustainable Urban Futures (Tokyo, Mar. 2010; Cape Town, Nov. 2008) – Main Organizer
- Chalmers Initiative Seminar on the Evolution of Sustainable Human Settlement, April 2008 – Executive Committee and coordinator
- AGS Annual Meeting, Barcelona, March 2007 – Scientific Committee

Selected invited presentations

- S. Rauch *Supporting the urban agenda*. AGS Annual Meeting, Zurich (Switzerland), January 2009

- S. Rauch, G.M. Morrison. *Urban innovation*. International Workshop on Sustainable City Region, Bali (Indonesia), February 2009
- S. Rauch, B. Peucker-Ehrenbrink, H.F. Hemond. *Platinum group elements in the environment – identifying sources from early mining to the automobile catalyst*. Keynote lecture, 15<sup>th</sup> ICHMET, Gdansk (Poland), September 2010.
- S. Rauch. Panel, *Expert Forum on Urban Density*. United Nations Pavilion, World Expo, Shanghai (China), October 2010.
- S. Rauch. *Urban Water Systems*. Swedish Academic Cooperation Forum, Singapore, November 2015.
- S. Rauch. *Wastewater management*. Swedish Academic Cooperation Forum, Indonesia, March 2016.
- S. Rauch. *Platinum group elements in the environment*. ACES Contaminant Science Seminars, Stockholm University, June 2016.
- S. Rauch. *Wastewater – still one of the most important engineering challenges*. STKR, Bandung Institut of Technology, Bandung, Indonesia, 2016.
- S. Rauch. *A peat-based record of atmospheric iridium and osmium accumulation*. Workshop on Environmental Concentrations, Cycling & Modeling of Technology Critical Elements. Rehovot, Israel, January 2017.
- S. Rauch. *A 6000 Year Record of Iridium and Osmium Accumulation at a Remote Peat Bog in NW Spain*. Goldschmidt Conference, Paris, August 2017.
- S. Rauch. *Platinum group elements – Emissions and occurrence in surficial environments*. Conference on Technology-critical elements: Sources, Chemistry and Toxicology. Keynote lecture, Zagreb (Croatia), April 2019.

Cover page feature, Environ. Sci. Technol., February 1 2010 issue.

Selected news articles featuring my research:

- GEOCHEMISTRY: Rare element can be used to detect past human activities. C&EN, December 2009
- Catalytic Converters Disperse Their Metals, C&EN, December 2005
- Bilarnas katalysatorer läcker gift under gång, Ny Teknik, March 1999
- Katalysator smutsar ner avgaser, Forskning & Framsteg March 2006
- Kan katalysatorer bidra till miljöförstöringen. In: Björn Fjaestad (Ed.) Dricker Fiskar Vatten? Bokförlaget DN, 2007.

Preface of Platinum metals in the Environment, edited by Zereini and Wisemann, Springer, 2014.

Best Poster Awards, AGS Annual Meeting, Boston, 2005

Best Poster Awards, 8HUES, Cyprus, 2006

Ideation Day prize, Climate KIC event, 2017 together with Welje Municipality, Denmark

Reviewer for over 30 journals and books (e.g. ES&T, EPSL, JAAS, STOTEN, Water Policy, Water Research, Nature Geoscience, Geochim. Cosmochim. Acta). Ca. 8-12 manuscripts reviewed / year.

Reviewer for funding applications e.g. NERC (UK, 2006, 2015); NSERCC (Canada, 2007, 2008, 2010, 2014); NSF (USA, 2010); NRF (South Africa, 2014); ASTRE Essonne Region (France, 2016); Vienna Science and Technology Fund (Austria, 2017); Israel Science Foundation (2017); Université Libre de Bruxelles (Marie Skłodowska Curie Actions, 2019), ESRC (UK, 2019).

Reviewer for Short-Term Scientific Missions, EU COST Action TD140 (2015-2019).

Reviewer for promotions/employment and participation in employment committees, e.g. several appointments at Chalmers, VTI (2016), University of Toronto (2017), Technical University of Catalonia (UPC, 2018).

Reviewer for the Swedish International Development Agency (SIDA) Helpdesk, as requested by the Swedish Embassy in Bamako, Mali. National Integrated Water resource Management Programme. 2019.

## LIST OF PUBLICATIONS – SEBASTIEN RAUCH

60 articles published in peer reviewed journals articles, 4 edited books, 14 peer reviewed book chapters since 1999.

Citation record in SCOPUS. Total citations: 2588, h-index 27 (October 2019).

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### Peer reviewed journal publications

1. Z. Sun, M. Majanevab, E. Sokolova, S. Rauch, S. Meland, Torbjørn Ekrem. **DNA metabarcoding adds valuable information for management of biodiversity in roadside stormwater ponds.** Ecology and Evolution 2019. doi.org/10.1002/ece3.5503.
2. Z. Sun, E. Sokolova, J.E. Brittain, S.J. Saltveit, S. Rauch, S. Meland. **Impact of environmental factors on aquatic biodiversity in roadside stormwater ponds.** Scientific Reports 2019, 9, article 5994. doi.org/10.1038/s41598-019-42497-z.
3. I. Helgegren, J. Mc Conville, G. Landaete, S. Rauch. **Community management for water and wastewater in urban and peri-urban areas of Cochabamba, Bolivia.** International Journal of Water Resources Development 2019, doi.org/10.1080/07900627.2019.1616536.
4. M. Hacker, J. Kaminsky, K. Faust, S. Rauch. **Regulatory Enforcement Approaches for Mass Population Displacement.** Journal of Construction Engineering and Management, accepted for publication.
5. A. Noren, K- Karlfedt-Fedje, A.M. Strömvall, S. Rauch, Y. Andersson-Sköld. **Integrated assessment of management strategies for metal-contaminated dredged sediments - What are the best approaches for ports, marinas and waterways?** Sci. Total Environ., accepted for publication.
6. M. Kylander, A. Martinez-Cortizas, R. Bindler, J. Kaal, J. Sjöström, S. Hansson, N. Silva Sánchez, S. Greenwood, K. Gallagher, J. Rydberg, C.M. Mörth, S. Rauch. **Mineral dust as a driver of carbon accumulation in northern latitudes.** Scientific Reports 2018, 8, article 6876. doi:10.1038/s41598-018-25162-9.
7. I. Helgegren, S. Rauch, C. Cossio, G. Landaete, J. McConville. **Importance of triggers and veto-barriers for the implementation of pour-flush toilets in informal peri-urban settlements - the case of Cochabamba, Bolivia.** PLoS One 2018, e0193613. doi: 10.1371/journal.pone.0193613.
8. C.X. Cossio, J. McConville, S. Rauch, B.M. Wilén, S. Dalahmeh, A. Mercado, A.M. Romero. **Wastewater management in small towns – Understanding the failure of small treatment plants in Bolivia.** Environmental Technology 2018, 39, 1393-1403.
9. K. Folens, T. Van Acker, E. Bolea-Fernandez, G. Cornelis, F. Vanhaecke, G. Du Laing, S. Rauch. **Identification of platinum nanoparticles in road dust leachate by single particle ICP-MS.** Sci. Total Environ. 2018, 615, 849-856.

10. Z. Sun, J.E. Brittain, E. Sokolova, H. Thygesen, S.J. Saltveit, S. Rauch, S. Meland. **Aquatic biodiversity in sedimentation ponds receiving road runoff - What are the key drivers?** Sci. Total Environ. 2018, 610–611, 1527-1535.
11. G. Cornelis, A.M. Forsberg Grivogiannis, N.P. Sköld, S. Rauch, J. Perez Holmberg. **Sludge concentration, shear rate and nanoparticle size determine silver nanoparticle removal during wastewater treatment.** Environmental Science Nano 2017, 4, 2225-2234.
12. M. Heibati, C.A. Stedmon, K. Stenroth, S. Rauch, J. Toljander, M. Säve-Söderbergh, K.R. Murphy. **Assessment of drinking water quality at the tap using fluorescence spectroscopy.** Water Research 2017, 125, 1-10.
13. T. Jacobson, S. Priya, S.K. Sharma, S. Andersson, S. Jakobsson, R. Tanghe, A. Ashouri, S. Rauch, P. Goloubinoff, P. Christen, M.J. Tamas. **Cadmium causes misfolding and aggregation of cytosolic proteins in yeast.** Molecular and Cellular Biology 2017, 37, e00490-16.
14. O. Modin, N. Fuad, S. Rauch. **Microbial electrochemical recovery of zinc.** Electrochimica Acta 2017, 248:58-63.
15. J.R. McConville, S. Rauch, I. Hellegren, J.H. Kain. **Using role-playing games to broaden engineering education.** International Journal of Sustainability in Higher Education 2017, 18, 594-607.
16. G. Cornelis, S. Rauch. **Drift correction of the dissolved signal in single particle ICPMS.** Anal. Bioanal. Chem. 2016, 408, 5075.
17. M.E. Kylander, A. Martínez Cortizas, R. Bindler, S. Greenwood, C.-M. Mörrth, S. Rauch. **Potentials and problems of building detailed dust records using peat archives: An example from Store Mosse (the “Great Bog”), Sweden.** Geochim Cosmochim Acta 2016, 190, 156-174.
18. J.R. McConville, J.O. Drangert, P. Tidåker, T.S.S. Neset, S. Rauch, I. Strid, K.S. Tonderski. **Closing the food loops – guidelines and criteria for improving nutrient management.** Sustainability: Science, Practice, & Policy 2015, 11 (2).
19. M. Mangold, G. Morrison, R. Harder, P. Hagbert, S. Rauch. **The transformative effect of the introduction of water volumetric billing in a disadvantaged housing area in Sweden.** Water Policy 2015, 16, 973-999.
20. J. Knutsson, S. Rauch, G.M. Morrison. **Estimation of Measurement Uncertainties for the DGT Passive Sampler Used for Determination of Copper in Water.** International Journal of Analytical Chemistry 2014, article 389125.
21. J. Knutsson, P. Knutsson, S. Rauch, T.J.R. Pettersson, G.M. Morrison. **Evaluation of a passive sampler for the speciation of metals in runoff water.** Environmental Science: Processes and impacts 2013, 15, 2233-2239.
22. J. Knutsson, S. Rauch, G.M. Morrison. **Performance of a passive sampler for the determination of time averaged concentrations of nitrate and phosphate in water.** Environmental Science: Processes and impacts 2013, 15, 955-962.
23. M.E. Kylander, R. Bindler, A. Matrinez-Cortizas, K. Gallagher, S. Rauch. **A novel approach to paleorecords of dust deposition and effective humidity: 8500 years of peat accumulation at Store Mosse, Sweden.** Quaternary Science Reviews 2013, 69, 69-82.

24. S. Rauch, O.S. Fatoki. **Anthropogenic platinum enrichment in the vicinity of mines in the Bushveld Igneous Complex, South Africa.** Water Air Soil Pollution 2013, 224, 1395.
25. N. Silva, T. Luping, S. Rauch. **Application of LA-ICP-MS for meso-scale chloride profiling in concrete.** Materials and Structures 2012, 46, 1369-1381.
26. O. Modin, X. Wang, X. Wu, S. Rauch, K. Karlfeldt Fedje. **Bioelectrochemical recovery of Cu, Pb, Cd, and Zn from dilute solutions.** Journal of Hazardous Materials 2012, 235-236, 291-297.
27. S. Rauch, B. Peucker-Ehrenbrink, M. Kylander, A. Cortizas-Martinez, D. Weiss, D. Heslop, C. Olid, T. Mighall, H.F. Hemond. **Anthropogenic forcings on the surficial osmium cycle.** Environ. Sci. Technol. 2010, 44, 881-887.
28. G. Carugati, S. Rauch, M. Kylander, A. Pozzi. **Experimental assessment of a large sample cell for laser ablation-ICP-MS and its application to sediment core micro-analysis.** Microchimica Acta 2010, 170, 39-45.
29. K. Karlfeldt, S. Rauch, B.M. Steenari, P. Cho. **Elemental associations in ash from waste combustion in fluidized bed.** Waste Management 2010, 30, 1273-1279.
30. Y. Kalmykova, S. Rauch, A.M. Strömvall, G.M. Morrison, B. Stolpes, M. Hasselöv. **Colloid-facilitated metal transport in peat filters.** Water Environment Research 2010, 82, 506-511.
31. Y. Kalmykova, A.M. Strömvall, S. Rauch, G.M. Morrison. **Peat filter performance under changing environmental conditions.** Journal of Hazardous Materials 2009, 166, 389-393.
32. M.E. Kylander, A. Matrinez-Cortizas, S. Rauch, D. Weiss. **Lead Penetration and Leaching in a Complex Temperate Soil Profile.** Environ. Sci. Technol. 2008, 42, 3177-3184.
33. S. Rauch, G.M. Morrison. **The environmental relevance of platinum group elements.** Elements 2008, 4, 259-263.
34. S. Rauch, B. Peucker-Ehrenbrink, L.T. Molina, M.M. Molina, H.F. Hemond. **Platinum group element concentration from automobile catalysts in Mexico City.** Environ. Sci. Technol. 2006, 40, 7554-7560.
35. S. Rauch, H.F. Hemond, D.J. Brabander. **High spatial resolution analysis of sediment cores by laser ablation-inductively coupled plasma-mass spectrometry.** Limnol. Oceanogr.: Methods 2006, 4, 268-274.
36. S. Rauch, H.F. Hemond, G.M. Morrison, C. Barbante, M. Owari, B. Peucker-Ehrenbrink, U. Wass. **Importance of automobile exhaust catalyst emissions for the deposition of platinum, palladium, and rhodium in the northern hemisphere.** Environ. Sci. Technol. 2005, 39, 8156-8162.
37. S. Rauch, H.F. Hemond, B. Peucker-Ehrenbrink, K. Ek, G.M. Morrison **Platinum group element concentrations and osmium isotopic composition in airborne particles from Boston, Massachusetts.** Environ. Sci. Technol. 2005, 39, 9464-9470.
38. K.H. Ek, G.M. Morrison, Peter Lindberg, S. Rauch **Comparative tissue distribution of metals in bird species in Sweden using laser ablation ICP-MS and ICP-MS.** Arch. Environ. Contam. Toxicol. 2004, 47, 259-269.

39. S. Rauch, M. Paulsson, M. Wilewska, H. Blank, G.M. Morrison **Short-term toxicity and binding of platinum to freshwater periphyton communities**. Arch. Environ. Contam. Toxicol. 2004, 47, 290-296.
40. K.H. Ek, S. Rauch, G.M. Morrison, P. Lindberg **Platinum group elements in eggs, blood, liver and faeces of birds of prey**. Sci. Total Environ. 2004, 334-335, 149-159.
41. K.H. Ek, G.M. Morrison, S. Rauch **Environmental routes for platinum group elements to biological materials in the environment – A review**. Sci. Total Environ. 2004, 334-335, 21-38.
42. S. Rauch, H.F. Hemond, B. Peucker-Ehrenbrink **Recent changes in platinum group element concentrations and osmium isotopic composition in sediments from an urban lake**. Environ. Sci. Technol. 2004, 38, 396-402.
43. S. Rauch, H.F. Hemond, B. Peucker-Ehrenbrink **Source characterisation of platinum group element deposition in an ombrotrophic peat bog**. J. Environ. Monit. 2004, 6, 335-343.
44. S. Rauch, G.M. Morrison. **Micrometer-resolved binding of lead to iron in urban river sediments**. Aust. J. Chem. 2004, 57, 921-924.
45. R. Moraes, P. Gerhard, L. Andersson, J. Sturve, S. Rauch, S. Molander **Establishing Causality Between Exposure to Metals and Effects on Fish in a Rain Forest Reserve**. Human and Ecological Risk Assessment 2003, 9, 149-169.
46. M. Moldovan, S. Rauch, G.M. Morrison, M.A. Palacios, M.M. Gomez **Impact of ageing on the distribution of platinum group elements and catalyst poisoning elements in automobile catalysts**. Surface and Interface Analysis 2003, 35, 354-359.
47. S. Rauch, H.F. Hemond **Sediment-based evidence of platinum concentration changes in an urban lake near Boston, MA**. Environ. Sci. Technol. 2003, 37, 3283-3288.
48. M. Kylander, S. Rauch, G.M. Morrison **Impact of automobile catalysts on the levels of platinum and lead in Accra, Ghana**. J. Environ. Monit. 2003, 5, 91-95.
49. M. Moldovan, M.A. Palacios, M.M. Gómez, G.M. Morrison, S. Rauch, C. McLeod, R. Ma, S. Caroli, A. Alimonti, F. Petrucci, B. Bocca, P. Schramel, M. Zischka, C. Pettersson, U. Wass, M. Luna, J.C. Saenz and J. Santamaria **Environmental risk of soluble and particulate platinum group elements released from gasoline and diesel engine catalytic converters**. Sci.Total Environ. 2002, 296, 199-208.
50. B. Gómez, M.A. Palacios, M. Gómez, J.L. Sánchez, G.M. Morrison, S. Rauch, C. McLeod, R. Ma, S. Caroli, A. Alimonti, F. Petrucci, B. Bocca, P. Schramel, M. Zischka, C. Pettersson, U. Wass **Levels and risk assessment for humans and ecosystems of platinum group elements in the airborne particles and road dust of some European cities**. Sci.Total Environ. 2002, 299, 1-19.
51. S. Rauch, G.M. Morrison, M. Moldovan **Scanning laser ablation-ICP-MS tracking of platinum group elements in urban particles**. Sci. Total Environ. 2002, 1-3, 243-251.
52. K. Jensen, S. Rauch, G.M. Morrison, P. Lindberg **Platinum group elements in feathers of raptors and their preys**. Arch. Environ. Contam. Toxicol. 2002, 42, 338-347.



53. L.B. Blom, G.M. Morrison, J. Kingston, G.A. Mills, R. Greenwood, T.J.R. Pettersson, S. Rauch. **Performance of an in situ passive sampling system for metals in stormwater.** J. Environ. Monit. 2002, 4, 258-262.
54. S. Rauch, M. Lu and G.M. Morrison **Heterogeneity of Platinum Group Metals in Airborne Particles.** Environmental Science & Technology 2001, 35, 595-599.
55. M. Motelica-Heino, S. Rauch, G.M. Morrison and O.F.X Donard **Determination of Palladium, Platinum and Rhodium in Urban Road Sediments by Laser Ablation-ICP-MS.** Analytica Chimica Acta 2001, 436, 233-244.
56. M. Moldovan, S. Rauch, G.M. Morrison, M.M. Gómez and M.A. Palacios **Bioaccumulation of Palladium, Platinum and Rhodium from Urban Particulates and Sediments by the Freshwater Isopod Asellus aquaticus.** Water Research 2001, 35, 4176-4184.
57. S. Rauch, M. Motelica-Heino, G.M. Morrison and O.F.X Donard **Critical Assessment of Platinum Group Element Determination in Road and River Sediments Using Ultrasonic Nebulisation and High Resolution ICP-MS.** Journal of Analytical Atomic Spectrometry 2000, 15, 329-334.
58. S. Rauch, G.M. Morrison, M. Motelica-Heino, O.F.X. Donard and M. Muris **Elemental Associations and Fingerprinting of Traffic Related Metals in Road Sediments.** Environmental Science & Technology 2000, 34, 3119-3123.
59. M.A. Palacios, M.M. Gómez, M. Moldovan, G. Morrison, S. Rauch, C. McLeod, R. Li, J. Laserna, P. Lucena, S. Caroli, A. Alimonti, P. Schramel, S. Lustig, U. Wass, B. Stenbom, M. Luna, J.C. Saenz, J. Santamaría and J.M. Torrents **Platinum Group Elements: Quantification in Collected Exhaust Fumes and Studies of Catalytic Surfaces.** The Science of the Total Environment 2000, 257, 1-15.
60. S. Rauch and G.M. Morrison **Platinum Uptake by the Freshwater Isopod Asellus aquaticus in Urban Rivers.** The Science of the Total Environment 1999, 235, 261-268.

## Books and book chapters

### Edited books

61. S. Rauch, G.M. Morrison, N. Schleicher, S. Norra (Eds) **Urban Environment.** Springer. p. 526. 2013. ISBN 978-94-007-7756-9.
62. S. Rauch, G.M. Morrison (Eds) **Urban Environment.** Springer. pp. 448. 2012. ISBN 978-94-007-2539-3
63. S. Rauch, G.M. Morrison, A. Monzon (Eds) **Highway and Urban Environment.** Springer. pp. 416. 2010. ISBN 978-90-481-3042-9.
64. G.M. Morrison, S. Rauch (Eds) **Highway and Urban Environment.** Springer. pp. 589. 2007. ISBN 978-1-4020-6009-0.

### Peer reviewed book chapters

65. S. Rauch. **Dispersion of contaminants in urban regions and beyond**. In M. Yokohari, A. Murakami, Y. Hara, K. Tsuchiya. Sustainable Landscape Planning in Selected Urban regions. Springer, 2017, 163-170.
66. S. Rauch, B. Peucker-Ehrenbrink. **Sources of platinum group elements in the environment**. In F. Zereini and C. Wisemann (Eds) Platinum metals in the environment. Springer. 2015, 3-17.
67. S. Rauch, O.S. Fatoki. **Platinum emissions by mining and metal production activities**. In F. Zereini and C. Wisemann (Eds) Platinum metals in the environment. Springer, 2015, 19-29.
68. I. Helgegren, H. Siltberg, S. Rauch, M. Mangold, G. Landatea, C. Ledo **Contextualizing sustainable development for small scale water and sanitation in Cochabamba, Bolivia**. In S. Rauch, G.M. Morrison, N. Schleicher, S. Norra (Eds) Urban Environment. Springer, 2013, 217-225.
69. S. Rauch, G. Carugatti, Y. Cao. **Direct analysis of trace elements in airborne particulate matter by laser ablation-ICP-MS**. In F. Zereini and C. Wisemann (Eds) Urban airborne Particulate Matter. Springer, 2011, pp 235-243.
70. S. Rauch, M. Kylander, M. Khosravi, A. Jamtrot. **Trace metals in Stockholm sediments**. In S. Rauch, G.M. Morrison, A. Monzon (Eds) Highway and Urban Environment. Springer, 2009, 267-273.
71. S. Rauch, O.S. Fatoki. **Platinum and lead in South African road dust**. In S. Rauch, G.M. Morrison, A. Monzon (Eds) Highway and Urban Environment. Springer, 2009, 161-166.
72. S. Rauch, J. Knutsson. **The relative impact of automobile catalysts and Russian smelters on PGE deposition in Greenland**. In G.M. Morrison, S. Rauch (Eds) Highway and Urban Environment. Springer, 2007, 215-222.
73. De Boni, W. Cairns, G. Capodaglio, P. Cescon, G. Cozzi, S. Rauch, H.F. Hemond, C. Boutron, C. Barbante **On-line matrix separation for the determination of PGEs in sediments by ICP-MS**. In: G.M. Morrison and S. Rauch (Eds) Highway and Urban Environment. Springer, 2007, 259-269.
74. S. Rauch, B. Peucker-Ehrenbrink, H.F. Hemond. **Source characterization of platinum group elements using the isotopic composition of osmium**. In F. Alt, F. Zereini (Eds). Palladium Emissions in the Environment. Analytical Methods, Environmental Assessment and Health Effects. Springer, 2007, 407-418.
75. S. Rauch, H.F. Hemond, G.M. Morrison, C. Barbante, M. Owari, B. Peucker-Ehrenbrink, U. Wass **Regional and global transport of platinum group elements from automobile catalysts**. In F. Alt, F. Zereini (Eds). Palladium Emissions in the Environment. Analytical Methods, Environmental Assessment and Health Effects. Springer, 2007, 295-305.
76. S. Rauch, G.M. Morrison **Importance of platinum group elements and gold speciation in environment and health**. In: R. Cornelis et al. (Eds) Handbook of Elemental Speciation, Volume 2. Wiley Publishing. 2005, pp. 327-337.
77. S. Rauch and G.M. Morrison **An Environmental Case History of the Platinum Group Metals**. In: L. Ebdon, L. Pitts, R. Cornelis, H. Crews, O. Donard and P. Quevauviller (Eds). Trace Element

Speciation for Environment, Food and Health. The Royal Society of Chemistry, 2001. pp. 176-185.

78. S. Rauch, G.M. Morrison **Routes for Bioaccumulation and Transformation of Platinum in the Urban Environment**. In: F. Alt and F. Zereini (Eds). Anthropogenic Platinum Group Metals Emission and their Effect on Man and Environment. Springer, 2000. pp 85-93.

### Refereed articles in peer reviewed conference proceedings

79. C. Burzio, S. Rauch, L. Rosado, K. Björklund, L. Blom. **Challenges and needs in urban stormwater planning – A Swedish case study**. Embrace the Water 2017, IWA conference, Gothenburg, 2017.
80. Z. Sun, E. Sokolova, S. Rauch, Sondre Meland. **Constructed stormwater systems extended to provide biodiversity-neutral roads**. Embrace the Water 2017, IWA conference, Gothenburg, 2017
81. S. Rauch, B. Peucker-Ehrenbrink and H.F. Hemond. **Platinum group elements in the environment – from early mining to the automobile catalyst**. Proceedings of the 15<sup>th</sup> International Conference on Heavy Metals in the Environment, Gdansk, Poland, 2010. pp. 53-56.
82. S. Rauch. **Urban Traces in the environment**. Proceedings of the International Workshop on Sustainable City Region, Tainan, Taiwan, February 2010.
83. S. Rauch, H.F. Hemond, G.E. Ravizza and G.M. Morrison. **Chronology of platinum accumulation in an urban lake**. Proceedings of the International Conference on Heavy Metals in the Environment. Journal de Physique IV 107, 1123-1126 (1).
84. S. Rauch, G.M. Morrison, M. Motelica-Heino and O.F.X. Donard. **Evaluation of Speciation, Transport and Ecological Risks of Palladium, Platinum and Rhodium in Urban Stormwater Systems**. Proceedings of the 8<sup>th</sup> International Conference on Urban Storm Drainage, Sydney, Australia, September 1999. The Institution of Engineers, Australia. Vol. 1 pp 202-209.
85. L.B. Björklund Persson, G.M. Morrison, M. Segura Roux, T.J.R. Pettersson, J. Ellis and S. Rauch. **Improved Assessment of Metal Concentrations in Stormwater Runoff with a Passive Sampler**. Proceedings 8th International Conference on Urban Storm Drainage, Sydney, Australia, September 1999. The institution of Engineers, Australia. Vol. 3, pp. 1505-1515.

### Non-refereed articles

86. A. Cobelo-Garcia, M. Fillela, P. Croot, S. Rauch, C. Frazzoli, N. Ospina-Alvarez, P. Salaun, J. Schäfer, S. Zimmermann, G. Du Laing. **COST action TD1407: network on technology-critical elements (NOTICE)—from environmental processes to human health threats**. Environmental Science and Pollution Research. 2015, 22, 15188–15194.

### Articles under review

87. M. Hacker, J. Kaminsky, K. Faust, S. Rauch. The Humanitarian-Development Nexus and Regulatory Exemptions in Temporary Accommodations. Submitted to World Development, February 2019.

88. I. Hellegren, J. Mc Conville, G. Landaete, S. Rauch. A multi-level regime analysis of the water and sanitation sector of the Kanata metropolitan region, Bolivia. Submitted to Technological Forecasting & Social Change, October 2019.