

Marta S. Codeço
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EDUCATION

2015–2019 **Ph.D.**, Geochemistry, University of Potsdam, Germany
2013–2015 **M.Sc.**, Economic Geology, University of Lisbon, Portugal
2008–2012 **B.Sc.**, Geology (Natural Resources), University of Lisbon, Portugal

PROFESSIONAL APPOINTMENTS

2025 – **Assistant Professor of Practice** | Dept. Geosciences, Arizona, Tucson, AZ, USA
2023 – 2025 **Manager, LPEG** | Lowell Institute for Mineral Resources, University of Arizona
2023 – **Guest Scientist** | GFZ German Research Center for Geosciences, Potsdam, Germany
2019 – 2023 **Postdoctoral researcher** | GFZ German Research Centre for Geosciences
2015 – 2019 **Doctoral candidate** | GFZ German Research Centre for Geosciences
2013 – 2015 **Research assistant** | FFCUL & Empresa Portuguesa de Obras Subterrâneas, EPOS S.A., Lisbon, Portugal

TEACHING

University of Arizona

2025 Co-instructor | Volcanology, Petrology, Economic Geology and Geochemistry (GEOS 596E-003)
 Co-instructor | Ore Microscopy and Petrography Applied to Mineral Deposits (GEOS 596B-001)
 Co-instructor | Materials, Societies, & Choices (GenEd) (GEOS 236)
 Guest Lecturer | Petrology & Geochemistry for Resource Geologists (GEOS 596-001)
2024 Co-instructor | Materials, Societies, & Choices (GEOS 236)
 Guest Lecturer | Lowell Program Ore Deposits Mapping (GEOS 50BC)
 Guest Lecturer | Petrology & Geochemistry for Resource Geologists (GEOS 596-001)
2023 Guest Lecturer | Lowell Program Ore Deposit Types (GEOS 504C)

University of Potsdam

2022 External Lecturer | Mineralogy and Resources
2021 Teaching Assistant | Mineralogy and Resources
2018 Teaching Assistant | Mineralogy and Resources

ACADEMIC ADVISING

Postdoctoral researchers

2024–2027 Rebecca Volkmann, GFZ Potsdam, Germany

Graduate (as primary advisor*/co-advisor)

2025 – Greg Greywall*, PhD student, University of Arizona, USA
2025 – Emma Kerins*, MS student, University of Arizona, USA
2025 – Pedro Brito*, PhD student, University of Arizona, USA
2025 – Nathan Carey*, MS student, University of Arizona, USA
2025 – Camila Sojo, PhD student, University of Arizona, USA
2025 – Guido Merino, MS student, University of Arizona, USA
2025 – Pamela Doig, MS student, University of Arizona, USA
2024 – Michaela Schnell*, MS student, University of Arizona, USA
2024 – Casey Tackett*, MS student, University of Arizona, USA
2022 Lorena Vega*, Internship, MS Student, University of Potsdam, Germany

Undergraduate (as primary advisor*/co-advisor)

2025 Erika Perez*, University of Arizona
2025 Stephanie Abbate*, University of Arizona
2023 Tabea Reitemeier*, University of Potsdam

Graduate Students – Supervisory Committee Member

2025 Lucas Brown | MS, University of Arizona, USA
2025 André Cravinho dos Santos | PhD, University of Lisbon, Portugal
2024 Guido Merino | MS, University of Arizona, USA
2024 James Aidala | PMS, University of Arizona, USA
2024 Pamela Doig, MS | University of Arizona, USA
2024 – Levi J. DeCrescenzo | PhD, University of Arizona, USA
2024 – Greg Greywall | PhD, University of Arizona, USA
2024 – Jennifer Weiss | PSM, University of Arizona, USA
2024 – Madeline Murtaugh | PSM, University of Arizona, USA
2023 –2025 Camila Sojo Aguero, PhD, University of Arizona, USA

FUNDED PROJECTS

2025 – 2028 Deciphering the origin and the timing of silver enrichment in high-sulfidation
epithermal deposits: The case study of Filo Del Sol deposit, Argentina – National
Science Foundation (\$151,253) | **Co-PI**

2025 – 2028	Comparative Studies of Jurassic, Cretaceous, and Cenozoic Carbonate Replacement Deposits and Related Carbonate-Hosted Mineralization, Arizona Borderlands (\$404,971.00) Co-PI
2025 – 2027	Mineralogy, hydrothermal alteration, and veining paragenesis within the Morenci District, Arizona – Freeport McMoRan Inc. (\$150,000) Lead PI
2025 – 2027	Structural control in porphyry mineralization in the Morenci deposit, Arizona – Freeport McMoRan Inc. (\$150,000) Lead PI
2024 – 2025	Mineralogical and metallurgical characterization of volcanogenic massive sulfide deposits – School of Mining and Mineral Resources Research and Innovation Initiative Grants (\$25,000) Lead PI
2024-2027	Geologic studies of porphyry copper deposits – Freeport McMoRan Inc. (\$600,000) Co-PI
2023 –2026	Geochemical fingerprinting of volcanogenic massive sulfide systems using accessory minerals – SPP 2238 DOME - DFG – Proposal author (awarded to Prof. Dr. Sarah Gleeson)
2021 –2023	Melts-Fluids-Models: keys to understanding ore-forming processes at the world-class Neves Corvo massive sulphide deposit, Iberian Pyrite Belt – SPP 2238 DOME - DFG – Proposal author (awarded to Prof. Dr. Sarah Gleeson)

AWARDS

2018	Travel Grant for the SEG Conference 2018 in Keystone, CO, USA awarded by the Society of Economic Geologists(US\$ 500)
2015	Academic Merit Scholarship for the best Master’s Student in Geology awarded by the University of Lisbon – Faculty of Sciences and Caixa Geral de Depósitos (1125 €)

ACADEMIC SERVICE

Associate Editor

2024 –	Ore Geology Reviews
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Journal Reviewer (ca. 6 manuscripts/year)

Since 2018	Economic Geology, Mineralium Deposita, Ore Geology Reviews, American Mineralogist, Contributions to Mineralogy and Petrology, Chemical Geology, Geochimica et Cosmochimica Acta, Lithos, Brazilian Journal of Geosciences, Terra Nova, Precambrian Research, Geochemistry: Exploration, Environment, Analysis, Acta Geochimica, Geologica Acta
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Other service

2025	Juri member Geodaze, University of Arizona
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2022	Co-organizer 7th GOOD Meeting (Cancelled), Potsdam, 5-6 October; meeting sponsored by the Deutsche Mineralogische Gesellschaft (DMG)/ German Association of Mineralogy
2022	Co-convenor Session GMPV5.2: Ore-forming systems and processes: geological settings, sources, origins and utilization; EGU 2022, Vienna
2022 – 2023	Member of the Raw Materials Research working group German Association of Mineralogy (DMG)
2022	Co-director Ore Deposits Hub
2021	Promotional Manager & Host Ore Deposits Hub

INVITED PRESENTATIONS

August 2022	Invited Presentation University College of Dublin, Dublin, Ireland: <i>Using geochemistry and numerical simulations to reconstruct processes in ore-forming system.</i> [hosted by Peter D.W. Haughton]
April 2022	Brown Bag seminar University of Arizona, Tucson, USA <i>Lowell Program in Economic Geology and the Global Energy Transition. A perspective.</i> [hosted by Ananya Mallik]
April 2022	Geosciences Colloquium Series University of Arizona, Tucson, USA <i>Using geochemistry and numerical simulations to reconstruct processes in ore-forming systems.</i> [hosted by Ananya Mallik]
March 2022	Geosciences Seminar University of Nevada Las Vegas, Las Vegas <i>Using geochemistry and numerical simulations to reconstruct processes in ore-forming systems.</i> [hosted by Pamela C. Burnley]
June 2021	Invited Seminar Ore Deposits Hub <i>Hydrothermal alteration minerals: what can they tell us about ore-forming processes? A case study from the world-class Panasqueira deposit, Portugal.</i> [Hosted by Ore Deposits Hub Team]
September 2019	Invited Presentation GSA Annual Meeting (T28. Mineralogical Society of America at 100: The Many Faces of Tourmaline), Phoenix, Arizona, USA <i>Tourmaline-muscovite pairs as recorders of ore-forming processes at the Panasqueira W-Sn-Cu deposit (Portugal).</i>
November 2017	Invited presentation, FlexPet Lab Group Meeting McGill University, Montreal, Canada <i>Fluid sources of the Panasqueira W-Sn-Cu Deposit (Portugal). Insights from chemical and boron isotopic compositions of hydrothermal tourmaline.</i> [hosted by Prof. Dr. Vincent van Hinsberg]
June 2017	MinPet Seminar University of Potsdam, Potsdam, Germany <i>Fluid sources and evolution of the Panasqueira W-Sn-Cu deposit, Portugal: evidence from chemical and boron isotopic compositions of hydrothermal tourmaline.</i> [hosted by Max Wilke]
June 2017	Seminar Series, Section 3.1 GFZ Potsdam, Potsdam, Germany <i>Fluid sources and evolution of the Panasqueira W-Sn-Cu deposit, Portugal: evidence from chemical and boron isotopic compositions of hydrothermal tourmaline.</i> [hosted by Christof Kusebauch]]

PROFESSIONAL SOCIETY MEMBERSHIPS

Since 2024	GSA - Geological Society of America (member)
Since 2018	SEG - Society of Economic Geologists (member)
Since 2015	EAG - European Association of Geochemists (member)
Since 2014	SGA - Society for Geology Applied to Mineral Deposits (member)

PUBLICATIONS

 Google Scholar

Journal Articles

1. **Codeço, M. S.**, Gleeson, S. A., Barrote, V., Harlov, D., Kusebauch, C., Koch-Müller, M., Relvas, J. M., Schmidt, C., Schleicher, A., Stammeier, J. A., Syczewski, M. D. & Wilke, F. D. Textural, mineralogical, and geochemical evidence for apatite metasomatism and REE mobility within the Corvo orebody at the Neves Corvo Cu-Zn-Pb(-Sn) VMS deposit (Iberian Pyrite Belt). *Mineralium Deposita* **60**, 1277–1295. <https://doi.org/10.1007/s00126-025-01348-w> (2025).
2. Trumbull, R. B. & **Codeço, M. S.** How do Ore Deposits Form? *Frontiers for Young Minds Earth Sciences* **11**, 1–8. <https://doi.org/10.3389/frym.2023.1237650> (1237650 2023).
3. **Codeço, M. S.**, Weis, P. & Anderson, C. Numerical Modeling of Structurally Controlled Ore Formation in Magmatic-Hydrothermal Systems. *Geochemistry, Geophysics, Geosystems* **23**, e2021GC010302. <https://doi.org/10.1029/2021GC010302> (8 2022).
4. **Codeço, M. S.**, Weis, P., Trumbull, R. B., van Hinsberg, V. J., Pinto, F., Lecumberri-Sanchez, P. & Schleicher, A. M. The imprint of hydrothermal fluids on trace-element contents in white mica and tourmaline from the Panasqueira W-Sn-Cu deposit, Portugal. *Mineralium Deposita* **56**, 481–508. <https://doi.org/10.1007/s00126-020-00984-8> (2021).
5. Trumbull, R. B., **Codeço, M. S.**, Jiang, S.-Y., Palmer, M. R. & Slack, J. F. Boron isotope variations in tourmaline from hydrothermal ore deposits: A review of controlling factors and insights for mineralizing systems. *Ore Geology Reviews* **125**, 103682. <https://doi.org/10.1016/j.oregeorev.2020.103682> (2020).
6. **Codeço, M. S.**, Weis, P., Trumbull, R. B., Glodny, J., Wiedenbeck, M. & Romer, R. L. Boron-isotope muscovite-tourmaline geothermometry indicates fluid cooling during magmatic-hydrothermal W-Sn-ore formation. *Economic Geology* **114**, 153–163 (1 2019).
7. Trumbull, R. B., Garda, G. M., Xavier, R. P., Cavalcanti, J. A. D. & **Codeço, M. S.** Tourmaline in the Passagem de Mariana gold deposit (Brazil) revisited: major-element, trace-element and B-isotope constraints on metallogenesis. *Mineralium Deposita* **54**, 395–414. [10.1007/s00126-018-0819-z](https://doi.org/10.1007/s00126-018-0819-z) (3 2019).
8. **Codeço, M. S.**, Mateus, A., Figueiras, J., Rodrigues, P. & Gonçalves, L. Development of the Ervidel-Roxo and Figueirinha-Albernoa volcanic sequences in the Iberian Pyrite Belt, Portugal: Metallogenic and geodynamic implications. *Ore Geology Reviews* **98**, 80–108. ISSN: 01691368. [10.1016/j.oregeorev.2018.05.009](https://doi.org/10.1016/j.oregeorev.2018.05.009) (2018).

9. **Codeço, M. S.**, Weis, P., Trumbull, R. B., Pinto, F., Lecumberri-Sanchez, P. & Wilke, F. D. Chemical and boron isotopic composition of hydrothermal tourmaline from the Panasqueira W-Sn-Cu deposit, Portugal. *Chemical Geology* **468**, 1–16. ISSN: 00092541. [10.1016/j.chemgeo.2017.07.011](https://doi.org/10.1016/j.chemgeo.2017.07.011) (2017).

Peer-reviewed Conference Proceedings

1. **Codeço, M. S.**, Gleeson, S. A., Relvas, J. M., Barrote, V., Scicchitano, M. R. & Wilke, F. D. *In-sights on the formation of tin ores in the Neves Corvo Cu-Zn-Pb(-Sn) deposit, from in situ trace element analysis and O-isotopes of cassiterite in Proceedings of the 18th SGA Biennial Meeting, August 3–7, 2025 Oral presentation* (Golden, Colorado, USA, 2025).
2. Volkmann, R., Van Schijndel, V., **Codeço, M. S.**, Hannington, M. & Gleeson, S. A. *Accessory Phases in the Archean Kidd Creek VMS Deposit – Fingerprints to unravel a complex deposit history in Goldschmidt Conference Abstracts 2025* (Prague, Czech Republic, 2025). <https://conf.goldschmidt.info/goldschmidt/2025/meetingapp.cgi/Paper/27437>.
3. **Codeço, M. S.**, Gleeson, S. A., Barrote, V., Relvas, J. M. & Wilke, F. D. *Primary and secondary phosphate minerals as indicators of apatite metasomatism and REE mobility within the “Tin corridor” at the Neves Corvo deposit (Iberian Pyrite Belt) in Geological Society of America Abstracts with Programs Vol. 56, No. 5 Oral presentation* (Anaheim, California, 2024). [10.1130/abs/2024AM-401945](https://doi.org/10.1130/abs/2024AM-401945).
4. Volkmann, R., Van Schijndel, V., **Codeço, M. S.**, Relvas, J. M. & Gleeson, S. A. *Accessory minerals as fingerprints of complex processes in volcanogenic massive sulphide systems in 4th European Mineralogical Conference Poster presentation* (Dublin, Ireland, 2024).
5. **Codeço, M. S.**, Gleeson, S. A., Relvas, J. M., Wilke, F. D., Schleicher, A., Stammeier, J. A., Barrote, V., Harlov, D. E., Schmidt, C. & Weis, P. *Tracking the evolution of the “Tin corridor” at the Neves Corvo deposit (Iberian Pyrite Belt) through metasomatism of phosphate minerals in Goldschmidt 2023 Conference Oral presentation* (Lyon, France, 2023). <https://conf.goldschmidt.info/goldschmidt/2023/meetingapp.cgi/Paper/15856>.
6. **Codeço, M. S.**, Gleeson, S. A., Rosa, C., Kuhn, P., Trumbull, R. B., Weis, P., Schleicher, A., Stammeier, J. & Wilke, F. *The Sesmarias massive sulfide discovery in Portugal (Iberian Pyrite Belt): preliminary geochemical and petrological studies in EGU General Assembly 2022 Oral presentation* (Vienna, Austria, 2022). <https://doi.org/10.5194/egusphere-egu22-6130>.
7. **Codeço, M. S.** *Insights into the magmatic-hydrothermal evolution at the Panasqueira W-Cu-Sn deposit, Portugal from chemical and B-isotopic studies of tourmaline and white mica: a review in 3rd International Conference on Tourmaline (TUR2021) Oral presentation* (Elba Island, Italy, 2021), 21–22.
8. **Codeço, M. S.**, Weis, P., Trumbull, R. B., Relvas, J., Veksler, I. & Gleeson, S. A. *The Crown Jewels: Understanding ore-forming processes at the world-class Panasqueira and Neves Corvo deposits, Portugal in 3rd European Mineralogical Conference Oral presentation* (Cracow, Poland, 2021), 100.
9. Trumbull, R. B., **Codeço, M. S.**, Jiang, S.-Y., Palmer, M. R. & Slack, J. F. *Boron isotope variations in tourmaline from hydrothermal ore deposits: controlling factors and insights for mineralizing systems in Goldschmidt Virtual 2021* (Virtual, 2021).

10. **Codeço, M. S.**, Weis, P., Trumbull, R. B., van Hinsberg, V., Glodny, J., Wiedenbeck, M., Romer, R. L. & Lecumberri-Sanchez, P. *Tourmaline-muscovite pairs as recorders of ore-forming processes at the Panasqueira W-Sn-Cu deposit (Portugal)* in *Geological Society of America Annual Meeting, Abstracts with Programs*. Vol. 51, No. 5 Invited presentation (Phoenix, Arizona, USA, 2019). [10.1130/abs/2019AM-334169](https://doi.org/10.1130/abs/2019AM-334169).
11. Trumbull, R. B., **Codeço, M. S.**, Glodny, J., Romer, R. R., Weis, P. & Wiedenbeck, M. *The use of muscovite for B-isotope studies of hydrothermal ores* in *GeoMünster 2019: Past, Present, Future* (Münster, Germany, 2019).
12. Weis, P., Korges, M., **Codeço, M. S.** & Andersen, C. *Combining fluid inclusion and stable isotope analyses with numerical modelling to reconstruct magmatic-hydrothermal ore-forming systems* in *Geological Society of America Annual Meeting, Abstracts with Programs*. Vol. 51, No. 5 (Phoenix, Arizona, USA, 2019). [10.1130/abs/2019AM-338769](https://doi.org/10.1130/abs/2019AM-338769).
13. **Codeço, M. S.**, Mateus, A., Figueiras, J., Rodrigues, P. & Gonçalves, L. *Zircon saturation and Ti-in-zircon thermometry of felsic volcanic rocks in the Iberian Pyrite Belt: useful exploration tools for volcanogenic massive sulfide deposits?* in *SEG 2018: Metals, Minerals and Society Poster* (SEG, Keystone, Colorado, 2018).
14. **Codeço, M. S.**, Weis, P., Trumbull, R. B., van Hinsberg, V. J., Pinto, F. & Lecumberri-Sanchez, P. *Early ore-forming fluids at the world-class Panasqueira W-Sn-Cu deposit (Portugal). Insights from in situ micro-analytical techniques* in *EGU General Assembly 2018 Poster* (EGU, Vienna, 2018). <http://adsabs.harvard.edu/abs/2018EGUGA..20.6777C>.
15. **Codeço, M. S.**, Weis, P., Trumbull, R. B., van Hinsberg, V. J., Pinto, F. & Lecumberri-Sanchez, P. *Using geochemistry and B-isotopes of hydrothermal tourmaline and mica to trace metals and fluid sources in the world-class class Panasqueira W-Sn-Cu deposit (Portugal).* in *SEG 2018: Metals, Minerals and Society Oral presentation + poster* (SEG, Keystone, Colorado, 2018).
16. Lecumberri-Sanchez, P., Heinrich, C. A., Wälle, M., **Codeço, M. S.**, Weis, P., Sosnicka, M. & Pinto, F. *Chemical controls on the paragenetic evolution at Panasqueira, Portugal* in *SEG 2018: Metals, Minerals and Society* (SEG, Keystone, Colorado, 2018).
17. **Codeço, M. S.**, Mateus, A., Figueiras, J., Rodrigues, P. & Gonçalves, L. *Zircon as a magma monitor: examples of zircon saturation and Ti-in-zircon thermometry applied to felsic volcanics of the Iberian Pyrite Belt* in *GeoBremen 2017 Poster* (Bremen, 2017), A-106.
18. **Codeço, M. S.**, Weis, P., Trumbull, R. B., Pinto, F. & Lecumberri-Sanchez, P. *Hydrothermal tourmaline from the Panasqueira W-Sn-Cu deposit, Portugal: chemical and B-isotope constraints on fluid source and evolution* in *Tourmaline 2017 International Symposium* (eds Cempírek, J., Novák, M. & Gadas, P.) Oral presentation (Skalsky Dvur, 2017), 23–25.
19. **Codeço, M. S.**, Weis, P., Trumbull, R. B., Pinto, F. & Lecumberri-Sanchez, P. *Chemical and $\delta^{11}\text{B}$ compositions of tourmaline from the Panasqueira W-Sn-Cu deposit, Portugal: considerations on fluid source and evolution* in *GeoBremen 2017 Oral presentation* (Bremen, 2017), A-120.
20. **Codeço, M. S.**, Weis, P., Trumbull, R. B., Pinto, F. & Lecumberri-Sanchez, P. *Fluid sources of the Panasqueira W-Sn-Cu deposit (Portugal): evidence from chemical and boron isotopic compositions of tourmaline* in *Goldschmidt Conference Abstracts 2017 Oral presentation* (Paris, 2017). <https://goldschmidtabstracts.info/abstracts/abstractView?id=2017001654>.

21. Lecumberri-Sanchez, P., Heinrich, C. A., Wälle, M., **Codeço, M.**, Weis, P., Pinto, F. & Vieira, R. *Fluid Sources at the Panasqueira Tungsten-Vein Deposit in AGU Fall Meeting 2017* (American Geophysical Union, New Orleans, 2017), abstract #V43B-0536. <http://adsabs.harvard.edu/abs/2017AGUFM.V43B0536L>.
22. Lecumberri-Sanchez, P., Heinrich, C. A., Wälle, M., **Codeço, M.**, Weis, P., Pinto, F. & Vieira, R. *Fluid evolution at the Panasqueira tungsten-vein deposit in GSA Annual Meeting* (Seattle, Washington, 2017). [10.1130/abs/2017AM-305876](https://doi.org/10.1130/abs/2017AM-305876).
23. **Codeço, M. S.**, Mateus, A., Figueiras, J., Rodrigues, P. & Gonçalves, L. *Zircon Saturation and Ti-in-Zircon Thermometry Applied to Felsic Volcanics of the Iberian Pyrite Belt; Useful Exploration Guides to Massive Sulphide Ores?* English. in X Congresso Ibérico de Geoquímica/XVIII Semana de Geoquímica Oral presentation (Alfragide, 2015).

Datasets

1. **Codeço, M. S.**, Gleeson, S. A., Barrote, V., Harlov, D., Kusebauch, C., Koch-Müller, M., Relvas, J. M., Schmidt, C., Schleicher, A., Stammeier, J. A., Syczewski, M. D. & Wilke, F. D. *Lithogeochemistry of the Volcanic-Sedimentary Complex and major and trace element contents in apatite from the Neves Corvo Cu-Zn-Pb(-Sn) deposit (Portugal)* Data Publication. 2025. <https://doi.org/10.5880/fidgeo.d.2025.001>.
2. **Codeço, M. S.**, Weis, P., Trumbull, R. B., van Hinsberg, V., Pinto, F., Lecumberri-Sanchez, P. & Schleicher, A. M. *Trace element contents in white mica and tourmaline from the Panasqueira W-Sn-Cu deposit (Portugal)* Data Publication. 2020. <https://doi.org/10.5880/GFZ.3.1.2020.002>.
3. Trumbull, R. B., **Codeço, M. S.**, Jiang, S.-Y., Palmer, M. R. & Slack, J. F. *Boron isotopes in tourmaline from hydrothermal ore systems* Data Publication. 2020. <http://dx.doi.org/10.17632/tv5y7xt9fb.4>.

Thesis

1. Codeço, M. S. F. *Constraining the hydrology at Minas da Panasqueira W-Sn-Cu deposit, Portugal* Doctoral Thesis. xxviii, 232 pages. Potsdam, Germany, June 2019. <https://doi.org/10.25932/publishup-42975>.
2. Codeço, M. S. F. *Estudo comparativo das sequências vulcânicas constituintes dos eixos Ervidel-Roxo e Figueirinha-Albernoa (Faixa Piritosa Ibérica) e respectiva relevância na prospecção de sulfuretos maciços polimetálicos*. pt. Unpublished MSc Thesis. Lisbon, Portugal, Apr. 2015. <http://hdl.handle.net/10451/18198>.

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