CLÉMENT RIEDEL
DATA SCIENTIST

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Experience

Data Science Immersive at **Galvanize** Apr 2016 - Jul 2016
12 weeks data science immersive.

Data Scientist at the **D-Lab** Jan 2014 - Apr 2016
I was creating data science products and teaching classes. We worked on a virtual environment; my classes and products focused on supervised and unsupervised learning.

Research Associate in Single molecule biophysics **(UC Berkeley)** Oct 2011 - Mar 2016
Publication as 1st author in ***Nature***. I performed experiments, developed codes using machine learning (automated regressions with complex models; Hidden Markov Models on noisy data…), leaded team.

Education

Postdoc in nanophysics (Universidad Autonoma de Madrid) Oct 2010 - Oct 2011
4 publications (3 as 1st author), 1 oral. Simulation (Matalb) of the electrodynamic interaction between a nanometric probe and dielectric material.

PhD: Dielectric and mechanical properties of polymers at macro & nanoscale Sep 2007 - Oct 2010
9 publications (8 as 1st author), 4 orals, **80 hours of teaching. (**Universidad del Pais Vasco)

Master of physics "Cosmos, fields and particles" (Université Montpellier 2) Sep 2005 - Jul 2007

License of physical science (Université Montpellier 2) Sep 2002 - Jul 2005

Data Science skills (see ds4all.io)

Fluent in python, matlab and R. SQL / Postgres to interact with databases and choose the right tool to solve the problem. (Experience with hadoop / map reduce / spark for big data. MongoDB and BS for scrapping.)

Supervised / Non supervised learning. Regression, regularization, neural networks, clustering, dimensionality reduction, anomaly detection, bootstrapping, random forest…

Natural Language Processing: LDA (i.e. topic modeling), LSA, NER (Stanford), document similarity and summarization. Author of NLQ.

Dynamic Data Science web application on cloud services (AWS EC2).

High quality presentation and communication. Experience leading team. Product management: Build - Measure - Learn. Persevere or Pivot. Accelerate. (Lean Startup method).

Achievements and awards

Green card upon Extraordinary Abilities in science (EB-1A).

Founder of 'Data Science for all' ds4all.io. The platform aims to bring data science awareness to the people and provide easy-to-use data science tools.

Human Frontier Science Program: Award of 150k$ that permits exceptional young scientists to perform research at the interface of life sciences.

Janus fellowship for the best undergraduate research program.

Original publications

13) The heat released during catalytic turnover enhances the diffusion of an enzyme. Nature 517(7533):227-30
C. Riedel, R. Gabizon, C.A. Wilson, K. Hamadani , K. Tsekouras, S. Marqusee, S. Pressé, C. Bustamante

12) Numerical simulations of electrostatic interactions between an atomic force microscopy tip and a dielectric sample in presence of buried nano-particles. Journal of Applied Physics **112** (11), 114313 (2012)
R. Arinero, **C. Riedel**, C. Guash

11) Contrast inversion in electrostatic force microscopy imaging of trapped charges: Tip-sample distance and dielectric constant dependence. Nanotechnology **22** (34), 345702 (2011)
C. Riedel, A. Alegría, R. Arinero, J. Colmenero and J. J. Saenz

10) On the use of electrostatic force microscopy as a quantitative subsurface characterization technique: A numerical study. Applied Physics Letters **99** (2), 023101 (2011)
C. Riedel, A. Alegría, G. A. Schwartz, R. Arinero, J. Colmenero and J. J. Saenz

9) Numerical study of the lateral resolution in electrostatic force microscopy for dielectric samples. Nanotechnology 22 (28), 285705 (2011)
C. Riedel, A. Alegría, G. A. Schwartz, J. Colmenero and J. J. Saenz

8) Broadband nanoDielectric Spectroscopy by means of Amplitude Modulation Electrostatic Force Microscopy (AM-EFM). UltraMicroscopy 111 (8), 1366 (2011)
G. A. Schwartz, **C. Riedel**, R. Arinero, Ph. Tordjeman, A. Alegría and J. Colmenero

7) Imaging dielectric relaxation of nano-structured polymers by frequency modulation electrostatic force microscopy. Applied Physics Letters **96**, 213110 (2010)
C. Riedel, R. Sweeney, N. Israeloff, R. Arinero, G. A. Schwartz, A. Alegría, Ph. Tordjeman, and J. Colmenero
➔ Selected for publication in the Virtual Journal of Nanoscale Science & Technology **21**(23) (2010)

6) Nanoscale dielectric properties of insulating thin films: From single point measurements to quantitative images. UltraMicroscopy **110**(6): 634-638 (2010)
C. Riedel, G. A. Schwartz, R. Arinero, Ph. Tordjeman, G. Lévêque, A. Alegría and J. Colmenero

5) High and low molecular weight crossovers in the longest relaxation time dependence of linear cis-1,4 polyisoprene by dielectric relaxations. Rheologica Acta **49**(5): 507-512 (2010)
C. Riedel, A. Alegría, Ph. Tordjeman and J. Colmenero

4) Nanodielectric mapping of a model polystyrene-poly(vinyl acetate) blend by electrostatic force microscopy. Physical Review E **81**(1): 010801 (2010) (Rapid Communication)
C. Riedel, R. Arinero, Ph. Tordjeman, G. Lévêque, G. A. Schwartz, A. Alegría and J. Colmenero
➔ Selected for publication in Microscopy and analysis **24**(4) (2010).
Virtual Journal of Nanoscale Science & Technology **21**(4) (2010)

3) Dielectric properties of thin insulating layers measured by Electrostatic Force Microscopy. The European Physical Journal Applied Physics **50**:10501 (2010)
C. Riedel, R. Arinero, Ph. Tordjeman, M. Ramonda, G. Lévêque, G. Schwartz, D. Oteya, A. Alegría and J. Colmenero

2) Rouse-model based description of the dielectric relaxation of non entangled linear cis-1,4 polyisoprene. Macromolecules **42**(21): 8492-8499 (2009)
C. Riedel, A. Alegría, Ph. Tordjeman and J. Colmenero

1) Determination of the nanoscale dielectric constant by means of a double pass method using electrostatic force microscopy. Journal of Applied Physics **106**(2): 024315 (2009)
C. Riedel, R. Arinero, Ph. Tordjeman, M. Ramonda, G. Lévêque, G. Schwartz, D. Oteya, A. Alegría and J. Colmenero

Book chapters

2) Polymer rheology by dielectric spectroscopy. Intech. ISBN 979-953-307-367-4
C. Riedel, A. Alegría, Ph. Tordjeman, and J. Colmenero

1) Measuring dielectric properties at the nanoscale using Electrostatic Force Microscopy. Microscopy: Science, Technology, Applications and Education (FORMATEX Microscopy Book Series ; n° 4), pp. 1963-1977. ISBN 978-84-614-6191-2
R. Arinero, **C. Riedel**, G. Schwartz, G. Lévêque, A. Alegría, P. Tordjeman, N. Israeloff, M. Ramonda, and J. Colmenero

International conferences

Orals:

7) 2011 MRS Fall Meeting & Exhibit, "Three-Dimensional Tomography of Dielectric Materials Using Electrostatic Force Microscopy" Boston, MA, 28 Nov – 2 Dec 2011.
C. Riedel, A. Alegría, R. Arinero, J. Colmenero and J. J. Saenz

6) 11em Forum des microscopies à sonde locales (national), "Spectroscopie diélectrique par microscopie à force électrostatique: application à l'étude de la dynamique des polymères nanostructurés" Lyon 25-29 April 2011
C. Riedel, R. Arinero, Ph. Tordjeman, M. Ramonda, G. Lévêque, G. A. Schwartz, A. Alegría and J. Colmenero

5) XII International Scanning Probe Microscopy, "Imaging the Temperature-frequency Dependence of the Local Dielectric Response of Phase Separated Polymer Films using of EFM". Sapporo, Japan, 10-12 May 2010.
C. Riedel, R. Sweeney, N. Israeloff, R. Arinero, G. A. Schwartz, A. Alegría, Ph. Tordjeman, and J. Colmenero

4) XII International Scanning Probe Microscopy, "Quantitative Dielectric Mapping of Nano-structured Systems by Means of Electrostatic Force Microscopy". Sapporo, Japan, 10-12 May 2010.
G. A. Schwartz, R. Arinero, **C. Riedel**, Ph. Tordjeman, A. Alegría and J. Colmenero

3) V Argentine-Chilean polymer symposium, "Study of the Nanoscale Dielectric Relaxation of Polymers by Means of Atomic Force Microscopy" Archipol 2009 - Cordoba, Argentina, 18-21 September 2009.
G. A. Schwartz, R. Arinero, **C. Riedel**, Ph. Tordjeman, A. Alegría and J. Colmenero

2) XI International Scanning Probe Microscopy, "Quantitative determination of the local dielectric permittivity of ultrathin films at nanoscale by means of Electrostatic Force Microscopy". Madrid, Spain, 17-19 June 2009.
C. Riedel, R. Arinero, Ph. Tordjeman, M. Ramonda, G. Lévêque, G. A. Schwartz, D. G. de Oteya, A. Alegría and J. Colmenero

1) De Gennes Discussion. "Comparison of the dielectric and viscoelastic relaxations of polyisoprene". Chamonix, France, 2-5 February 2009.
C. Riedel, A. Alegría, Ph. Tordjeman and J. Colmenero

Posters:

8) Biophysical Society 58th Annual Meeting. "The heat released by a chemical reaction enhances the diffusion of the enzyme?". San Francisco, United States of America, 15-19 February 2014
C. Riedel, C.A.M Wilson, K. Hamadani, S. Presse, K. Konstantinos, S. Marqusee, C. Bustamante

7) XII PABMB. "Enzymes stepping on landmines" Puerto Varas, Chile, 9-14 November 2014
C. Riedel, C.A.M Wilson, K. Hamadani, S. Presse, K. Konstantinos, S. Marqusee, C. Bustamante

6) Biophysical Society 57th Annual Meeting. "Single enzyme diffusion enhanced by catalysis: A stochastic heat transfer process?". Philadelphia, United States of America, 2-6 February 2013
C. Riedel, C.A.M Wilson, K. Hamadani, S. Presse, C. Bustamante

5) DIPC 10: Passion for knwoledge, "Dielectric and mechanical properties of polymers at macro and nanoscale". Donostia - San Sebastian, Spain, 27 September – 1 October 2010.
C. Riedel, R. Arinero, Ph. Tordjeman, N. Israeloff, G. Lévêque, G. A. Schwartz, A. Alegría and J. Colmenero

4) 6th International discussion meeting on relaxations in complex systems, "Quantitative dielectric permittivity investigation of polymers and polymer blends using electrostatic force microscopy" Rome, Italy, 30th August – 4 september 2009.
G. A. Schwartz, R. Arinero, **C. Riedel**, Ph. Tordjeman, A. Alegría and J. Colmenero

3) Perspectives in nanoscience and nanotechnology - Nano2009 Conference, "Dielectric mapping of nanostrucured polymers" San Sebastian - Donostia, Spain, 28-30 September 2009.
C. Riedel, R. Arinero, Ph. Tordjeman, M. Ramonda, G. Lévêque, G. A. Schwartz, A. Alegría and J. Colmenero

2) inanoGUNE ETORTEK 1st Workshop (national), "Determination of the Nanoscale dielectric permittivity by means of a double pass method using EFM". San Sebastian - Donostia, Spain, 25-27 May 2009.
C. Riedel, R. Arinero, Ph. Tordjeman, M. Ramonda, G. Lévêque, G. A. Schwartz, D. G. de Oteya, A. Alegría and J. Colmenero

1) 5th Broadband Dielectric Spectrospy and its application. "Molecular weight effects on dielectric relaxations of polyisoprene". Lyon, France, 26-29 August 2008.
C. Riedel, A. Alegría, Ph. Tordjeman and J. Colmenero

Invited talks

5) University of Santiago in Chile. Contact: Assistant Prof. Wilson "Enzymes stepping on landmines". November 2013.

4) Berkeley – University of California, CA, USA. Contact: Prof. Crommie. "Dielectric and mechanical properties of polymers at macro and nanoscale". 13 November 2009.

3) Massachusetts Institute of Technology, Boston, MA, USA. Contact: Assistant Prof. Gradecak. "Measuring dielectric properties at the nanoscale". 12 May 2009.

2) Northeastern University, Boston, MA, USA. Contact: Assistant Prof. Israeloff. "Measuring dielectric properties at the nanoscale". 10 May 2009.

1) Toulouse – IMFT. Contact : Prof. Tordjeman "Proprietes dielectriques a l'echelle nanoscopique". Octobre 2008.