

Alexander Michael Petersen

Assistant Professor
Department of Management of Complex Systems
[Ernest and Julio Gallo Management Program](#)
School of Engineering
University of California, Merced

[Google Scholar Profile](#)

email: petersen.xander@gmail.com or apetersen3@ucmerced.edu

EDUCATION

- Ph.D. Physics (Boston University, March 2011). Thesis Advisor: H. E. Stanley.
- M.A. Physics (Boston University, Jan. 2008)
- B.Sc. Applied Physics (University of Utah, May 2003)
- B.Sc. Mathematics (University of Utah, May 2003)

NATIONALITY

- Naturalized U.S. Citizen, Hispanic (Born: Bogota, Colombia, 3/1981).
- Languages: English (first), Spanish (medium experience 3/5 - conversational), Italian (medium experience 2/5).

EXPERIENCE

Assistant Professor, University of California, Merced	July 2016-present
Assistant Professor, IMT Lucca School for Advanced Studies, Lucca Tuscany, Italy	June 2011-June2016
Research Assistant, Boston University, Boston , MA	2006-2011
Teaching Assistant, Boston University, Boston , MA	2004-2006
Research Assistant, University of Utah, Salt Lake City, UT	2002-2003

Research: Analysis of socio-economic systems using concepts and methods from complex systems, statistical physics, and management and innovation science.

Teaching: (i) IMT Lucca: “Mathematics precourse” and “Data analytics and visualization for the Economics and Management Science”. (ii) UC Merced: COGS 180, “Topics in Cognitive Science: Visualization & Presentation”. (iii) UC Merced: MIST 203, Master of Management program, “Quantitative Tools for Management.”

Visiting: Visiting researcher (Oct.-Dec. 2015), Dept. of Economics, Pontificia Universidad Javeriana, Bogota Colombia.

GRADUATE STUDENT RESEARCHERS

- Felber Arroyave Bermudez, UC Merced (PhD candidate, Env. Systems, 2018, co-advisor w. Prof. Jeff Jenkins)
- Dr. Omar A. Doria Arrieta, IMT Lucca, Economics, Markets, Institutions (Ph.D. 2017, Dissertation co-advisor)
- Dr. Paulo Sgrignoli, IMT Lucca, Economics, Markets, Institutions (Ph.D. 2014, Dissertation co-advisor)

GRANTS

- Co-PI: *Senate Research Award*. \$10,000 (total); co-PI with Prof. Leroy Westerling, 2017. **UC Merced**
- Co-PI: [EAGER From Genomics to Brain Sciences: What Makes Researchers Tick in Transdisciplinary Initiatives](#). \$60,408 (total; 8,335 to UCM). One-year EAGER grant, 2017-2018. Grant (1738163) funded by the Science of Science & Innovation Policy (SciSIP) program, **National Science Foundation**

Publications by Journal, Impact, Role, and Career Period

JOURNAL TYPE	JOURNAL (2018 IMPACT FACTOR)	PUBLICATIONS	AS FIRST AND/OR CORR. AUTHOR	PUBLICATIONS SINCE PHD (2012-)	AS FIRST AND/OR CORR. AUTHOR (2012-)
Multi-Disc./Hi-Impact	Science (41), Science Advances (11.5), Proc. Nat. Acad. Sci./PNAS (9.5)	10	6	7	5
Mgmt./Econ.	Research Policy (4.7)	2	1	2	1
Multi-D/Other	Scientific Reports (4.1), Journal of the Royal Society Interface (3.4)	6	6	5	5
Information Science	J.Informetrics (3.5), EPJ Data Science (3.0)	4	3	4	3
Physics	Nature Physics (22.7), Physics Today (4.4), Phys. Rev. E (2.3), J. Stat. Mech (2.4), Europhysics Letters (1.8), EPJ B (1.5)	11	6	2	0
Other	Sci. & Eng. Ethics (1.9), Social Science Information (0.6)	2	1	2	1
Total	16 journals	35	23	22	15

PUBLICATIONS

1. A. M. Petersen. [Multiscale impact of researcher mobility](#). J. Royal Society Interface **15**, 20180580 (2018).
2. A. M. Petersen, D. Majeti, K. Kwon, M. Ahmed, I. Pavlidis. [Cross-disciplinary evolution of the genomics revolution](#). Science Advances **3**, eaat4211 (2018).
3. A. M. Petersen, R. K. Pan, F. Pammolli, S. Fortunato. [Methods to account for citation inflation in scientific evaluation](#) Under review (2018). SSRN e-print:3193712
4. A. M. Petersen. [Megajournal mismanagement: Manuscript decision bias and anomalous editor activity at PLOS ONE](#). Under review (2018). SSRN e-print:2901272.
5. R. K. Pan, A. M. Petersen, F. Pammolli, S. Fortunato. [The Memory of Science: Inflation, Myopia, and the Knowledge Network](#). J. Informetrics **12**, 656-678 (2018).
6. S. Fortunato, C. T. Bergsrom, K. Borner, J. A. Evans, D. Helbing, S. Milojevic, A. M. Petersen, F. Radicchi, R. Sinatra, B. Uzzi, A. Vespignani, L. Waltman, D. Wang., A.-L. Barabasi. [Science of Science](#). Science **359**, eaa0185 (2018).
7. A. M. Petersen, M. Puliga. [High-skilled labor mobility in Europe before and after the 2004 enlargement](#). Journal of the Royal Society Interface **14**, 20170030 (2017). [[Cover image](#)]
8. O. Doria Arrieta, F. Pammolli, A. M. Petersen. [Quantifying the negative impact of brain-drain on the integration of European science](#). Science Advances **3**, e1602232 (2017).
9. L. Leydesdorff, A. M. Petersen, I. Ivanova. [Self-organization of meaning and the reflexive communication of information](#). Social Science Information, **56**(1), 4-27 (2017).
10. A. M. Petersen, D. Rotolo, L. Leydesdorff. [A Triple Helix Model of Medical Innovation: Supply, Demand, and Technological Capabilities in terms of Medical Subject Headings](#). Research Policy **45**(3), 666-681 (2016).
11. A. M. Petersen. [Quantifying the impact of weak, strong, and super ties in scientific careers](#). Proceedings of the National Academy of Sciences USA **112**, E4671-E4680 (2015).
12. A. Morescalchi, F. Pammolli, O. Penner, A. M. Petersen, M. Riccaboni. [The evolution of networks of innovators within and across borders: Evidence from patent data](#). Research Policy **44**(3), 651-668 (2015).
13. A. M. Petersen, O. Penner. [Inequality and cumulative advantage in science careers: a case study of high-impact journals](#). EPJ Data Science **3**, 24 (2014).
14. I. Pavlidis, A. M. Petersen, I. Semendeferi. [Together we stand](#). Nature Physics **10**, 700-702 (2014).
15. C. Schulz, A. Mazloumian, A. M. Petersen, O. Penner, D. Helbing. [Exploiting citation networks for large-scale name disambiguation](#). EPJ Data Science **3**, 11 (2014).

16. A. M. Petersen, S. Fortunato, R. K. Pan, K. Kaski, O. Penner, A. Rungi, M. Riccaboni, H. E. Stanley, F. Pammolli. [*Reputation and impact in academic careers*](#). Proceedings of the National Academy of Sciences USA **111**, 15316-15321(2014).
17. A. M. Petersen, I. Pavlidis, I. Semendeferi. [*A quantitative perspective on ethics in large team science*](#). Sci. & Eng. Ethics **20**, 923-945 (2014).
18. O. Penner, R. K. Pan, A. M. Petersen, K. Kaski, S. Fortunato. [*On the predictability of future impact in science*](#). Scientific Reports **3**, 3052 (2013).
19. A. M. Petersen, S. Succi. [*The Z-index: A geometric representation of productivity and impact which accounts for information in the entire rank-citation profile*](#). J. Informetrics **7**, 823-832 (2013).
20. O. Penner, A. M. Petersen, R. K. Pan, S. Fortunato. [*The case for caution in predicting scientists' future impact*](#). Physics Today **66**, 8 (2013).
21. A. Chessa, A. Morescalchi, F. Pammolli, O. Penner, A. M. Petersen, M. Riccaboni. [*Is Europe evolving toward an integrated research area?*](#) Science **339**, 650 (2013).
22. A. M. Petersen, J. Tenenbaum, S. Havlin, H. E. Stanley, M. Perc. [*Languages cool as they expand: Allometric scaling and the decreasing need for new words*](#). Scientific Reports **2**, 943 (2012).
23. A. M. Petersen, M. Riccaboni, H. E. Stanley, F. Pammolli. [*Persistence and Uncertainty in the Academic Career*](#). Proceedings of the National Academy of Sciences USA **109**, 5213 (2012).
24. A. M. Petersen, J. Tenenbaum, S. Havlin, H. E. Stanley. [*Statistical Laws Governing Fluctuations in Word Use from Word Birth to Word Death*](#). Scientific Reports **2**, 313 (2012).
25. A. M. Petersen, H. E. Stanley, S. Succi. [*Statistical regularities in the rank-citation profile of scientists*](#). Scientific Reports **1**, 181 (2011).
26. A. M. Petersen. [*Applications of Statistical Physics to the Social and Economic Sciences*](#). PhD Thesis, Boston University (2011). Thesis Advisor: H. Eugene Stanley.
27. A. M. Petersen, W-S. Jung, J-S. Yang, H. E. Stanley. [*Quantitative and Empirical demonstration of the Matthew Effect in a study of Career Longevity*](#). Proceedings of the National Academy of Sciences USA **108**, 18 (2011).
28. A. M. Petersen, O. Penner, H. E. Stanley. [*Methods for detrending success metrics to account for inflationary and deflationary factors*](#). Eur. Phys. J. B. **79**, 67 (2011). Preprint title: [*Detrending career statistics in professional baseball: Accounting for the Steroids Era and beyond*](#).
29. B. Podobnik, D. Horvatic, A. M. Petersen, B. Urošević, H. E. Stanley. [*Bankruptcy Risk Model and Empirical Tests*](#). Proceedings of the National Academy of Sciences USA **107**, 18325 (2010).
30. A. M. Petersen, F. Wang, S. Havlin, H. E. Stanley. [*Market dynamics immediately before and after financial shocks: Quantifying the Omori, productivity and Bath laws*](#). Phys. Rev. E **82**, 036114 (2010).
31. B. Podobnik, D. Horvatic, A. M. Petersen, M. Njavro, H. E. Stanley. [*Common scaling behavior in finance and macroeconomics*](#). Eur. Phys. J. B **76**, 487 (2010).
32. A. M. Petersen, B. Podobnik, D. Horvatic, H. E. Stanley. [*Scale-invariant properties of public-debt growth*](#). Europhysics Letters **90**, 38006 (2010).
33. A. M. Petersen, F. Wang, H. E. Stanley. [*Methods for measuring the citations and productivity of scientists across time and discipline*](#). Physical Review E **81**, 036114 (2010).
34. A. M. Petersen, F. Wang, S. Havlin, H. E. Stanley. [*Quantitative law describing market dynamics before and after interest-rate change*](#). Physical Review E **81**, 066121 (2010).
35. B. Podobnik, D. Horvatic, A. M. Petersen, H. E. Stanley. [*Cross-Correlations between Volume Change and Price Change*](#). Proceedings of the National Academy of Sciences USA **106**, 22079 (2009).
36. B. Podobnik, D. Horvatic, A. M. Petersen, H. E. Stanley. [*Quantitative relations between risk, return and firm size*](#). Europhysics Letters **85**, 50003 (2009).
37. A. M. Petersen, W-S. Jung, H. E. Stanley. [*On the distribution of career longevity and the evolution of home run prowess in professional baseball*](#). Europhysics Letters **83**, 50010 (2008).
38. M. Mobilia, A. Petersen, S. Redner. [*On the Role of Zealotry in the Voter Model*](#). J. Stat. Mech. **08**, P08029 (2007).

Referee Service: Science, Science Advances, Nature, Proceedings of the National Academy of Sciences USA, Research Policy, Physical Review Letters, Journal of the Royal Society Interface, J. Informetrics, Service Science, National Science Foundation (NSF) proposal review, EU COST open call transdomain proposal on “big data”, Austrian Science Fund ([FWF](#)) research project grant proposal review, Europhysics Letters (named a [2011 distinguished referee](#)), Physica A (named a 2013 distinguished referee), Journal of Statistical Mechanics, PLOS ONE, Scientific Reports, Journal of the American Society for Information Science and Technology (JASIST), European Physics J. B (EPJB), European Physics J. Data Science (EPJDS), Royal Society Open Science, Knowledge and Information Systems, European Sociological Review, Industry & Innovation, “Chaos, Solitons, and Fractals”, Scientometrics, International Journal of Climatology.

SELECTED MEDIA COVERAGE

- [Physicists who move abroad can receive a 17% uplift in citations, study reveals](#), Physics World
- [Migration brings citations boost](#), Science
- [Europe's paradox: Why increased scientific mobility has not led to more international collaborations](#), Science
- [Joining the European Union leads to less cross-border collaboration](#), Nature
- [Lifetime collaborators reap the benefits](#), Nature
- [Publishing Partners](#), The Scientist
- [Dynamic duos in science can reap rewards of academic partnerships](#), Times Higher Education
- [Collaboration and scientific career development](#), PNAS Highlight
- [Study suggests long term collaborations result in more productive scientific careers](#), Phys.org
- [Recognition: Build a reputation](#), Nature
- [The benefits of being a big name](#), Nature
- [Researchers say academia can learn from Hollywood](#), Phys.org
- [Scientists' reputations and citation rates](#), PNAS Highlight
- [Researchers prefer citing researchers of good reputation](#), Phys.org
- [Team Science Is Tied to Growth in Grants With Multiple Recipients](#), The Chronicle of Higher Education
- [Family values](#), Chemistry World
- [Choice words: Graphing the evolution of language](#), arts&sciences Fall 2013 Magazine
- [Divinations of academic success may be flawed](#), Nature
- [F1000 evaluation of “Statistical laws governing fluctuations in word use from word birth to word death”](#), Faculty of 1000 post-publication peer review
- [When physicists do linguistics](#), Boston Globe / International Herald Tribune (Feb. 10/11, 2013)
- [Physicists explore the rise and fall of words](#), Inside Science News Service
- [Short-term contracts may hinder young scientists](#), PNAS Highlight
- [The New Science of the Birth and Death of Words](#), Wall Street Journal (Mar. 17, 2012)
- [Languages Lose Vocab to Science and Spell-Check](#), InnovationNewsDaily
- [Digital Spell-Checking May Be Killing Off Words](#), LiveScience / MSNBC / Discovery.com
- [Modern era brings death to words](#), ScienceNews
- [Study reveals words' Darwinian struggle for survival](#), theGuardian
- [Bernanke Announcement Leaves Quake Like Aftershocks](#), Inside Science News Service
- [New Statistical Method Ranks Sports Players From Different Eras](#), MIT Technology Review
- [A Physics Curveball](#), arts&sciences Fall 2010 Magazine (Annual BU Research Highlight)