

## MARTIN ROSVALL – CURRICULUM VITAE

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PERSONAL DATA	Date of birth Citizenship	June 19, 1978. Swedish.
RESEARCH INTERESTS	Life sciences, integrated systems, complex networks, information theory, maps, communication, evolution, and self-organization.	
EDUCATION		
2011 –	<b>Associate Senior Lecturer</b> in Department of Physics at Umeå University, Umeå, Sweden.	
2009 – 2011	<b>Assistant Professor</b> in Department of Physics at Umeå University, Umeå, Sweden.	
2006 – 2008	<b>Postdoc</b> in Department of Biology at University of Washington, Seattle, USA. Supervisor: Carl T. Bergstrom.	
2003 – 2006	<b>PhD</b> student in <i>Theoretical Physics</i> ; Umeå University, Umeå, Sweden, and NORDITA/Niels Bohr Institute, Copenhagen, Denmark. Supervisors: Petter Minnhagen and Kim Sneppen. PhD thesis title: <i>Information Horizons in a Complex World</i> (defended September 22, 2006).	
1998 – 2003	<b>MSc</b> in <i>Engineering Physics</i> , with a theoretical physics and computational profile; Umeå University, Umeå, Sweden. Master thesis title: <i>Complex Networks and Dynamics of an Information Network Model</i> . Supervisor: Kim Sneppen. Performed at NORDITA/Niels Bohr Institute, Copenhagen, Denmark.	
PUBLICATIONS	There are links to interactive visualizations related to the publications on my websites <a href="http://www.tp.umu.se/~rosvall">http://www.tp.umu.se/~rosvall</a> and <a href="http://www.mapequation.org">http://www.mapequation.org</a> .	
	<ul style="list-style-type: none"><li>○ M. Rosvall and C. T. Bergstrom, <i>Multilevel compression of random walks on networks reveals hierarchical organization in large integrated systems</i>, PLoS ONE <b>6</b>(4): e18209 (2011). [<a href="#">pdf</a>]</li><li>○ C. T. Bergstrom and M. Rosvall, <i>Response to commentaries on "The transmission sense of information"</i>, Biology and Philosophy <b>26</b>, 195 (2011). [<a href="#">pdf</a>]</li><li>○ C. T. Bergstrom and M. Rosvall, <i>The transmission sense of information</i>, Biology and Philosophy <b>26</b>, 159 (2011). [<a href="#">pdf</a>]</li><li>○ M. Rosvall and C. T. Bergstrom, <i>Mapping change in large networks</i>, PLoS ONE <b>5</b>(1): e8694 (2010). [<a href="#">pdf</a>]</li><li>○ L. Lizana, M. Rosvall and K. Sneppen, <i>Time walkers and spatial dynamics of ageing information</i>, Phys. Rev. Lett. <b>104</b>, 040603 (2010). [<a href="#">pdf</a>]</li><li>○ M. Rosvall, D. Axelsson, and C. T. Bergstrom, <i>The map equation</i>, Eur. Phys. J. Special Topics <b>178</b>, 13 (2009). [<a href="#">pdf</a>]</li><li>○ M. Rosvall and K. Sneppen, <i>Reinforced communication and social navigation generate groups in model networks</i>, Phys. Rev. E <b>79</b>, 026111 (2009). [<a href="#">pdf</a>]</li><li>○ M. Rosvall and C. T. Bergstrom, <i>Maps of random walks on complex networks reveal community structure</i>, PNAS <b>105</b>, 1118 (2008). [<a href="#">pdf</a>]</li><li>○ M. Rosvall and C. T. Bergstrom, <i>An information-theoretic framework for resolving community structure in complex networks</i>, PNAS <b>104</b>, 7327 (2007). [<a href="#">pdf</a>]</li></ul>	

- M. Rosvall and K. Sneppen, *Networks and Our Limited Information Horizon*, *Chaos* **17**, 2509 (2007). [[pdf](#)]
- M. Rosvall, I. B. Dodd, S. Krishna, and K. Sneppen, *Network models of phage-bacteria coevolution*, *Phys. Rev. E* **74**, 066105 (2006). [[pdf](#)]
- M. Rosvall and K. Sneppen, *Self-Assembly of Information in Networks*, *Europhys. Lett.* **74**, 1109 (2006). [[pdf](#)]
- M. Rosvall and K. Sneppen, *Modeling Self-Organization of Communication and Topology in Social Networks*, *Phys. Rev. E* **74**, 016108 (2006). [[pdf](#)]
- J. Bock, S. Bernhardsson, M. Rosvall, A. Trusina, and K. Sneppen, *Degree Independent Organization in Scale-Free Networks*, *Phys. Rev. E* **74**, 036119 (2006). [[pdf](#)]
- M. Rosvall, A. Trusina, P. Minnhagen, and K. Sneppen, *Networks and Cities: An Information Perspective*, *Phys. Rev. Lett.* **94**, 028701 (2005). [[pdf](#)]
- M. Rosvall, P. Minnhagen, and K. Sneppen, *Navigating Networks with Limited Information*, *Phys. Rev. E* **71**, 066111 (2005). [[pdf](#)]
- A. Trusina, M. Rosvall, and K. Sneppen, *Communication Boundaries in Networks*, *Phys. Rev. Lett.* **94**, 238701 (2005). [[pdf](#)]
- K. Sneppen, A. Trusina, and M. Rosvall, *Hide and seek on complex networks*, *Europhys. Lett.* **69**, 853 (2005). [[pdf](#)]
- M. Rosvall, A. Grönlund, P. Minnhagen, and K. Sneppen, *Searchability of Networks*, *Phys. Rev. E* **72**, 046117 (2005). [[pdf](#)]
- K. Sneppen, A. Trusina and M. Rosvall, *Measuring information networks*, *Pramana-J. Phys.* **6**, 1121 (2005). [[pdf](#)]
- K. Sneppen, M. Rosvall, A. Trusina, and P. Minnhagen, *A simple model for self organization of bipartite networks*, *Europhys. Lett.* **67**, 349 (2004). [[pdf](#)]
- P. Minnhagen, M. Rosvall, K. Sneppen, and A. Trusina, *Self-organization of structures and networks from merging and small-scale fluctuations*, *Physica A: Statistical Mechanics and its Applications* **340**, 725 (2004). [[pdf](#)]
- M. Rosvall and K. Sneppen, *Modeling Dynamics of Information Networks*, *Phys. Rev. Lett.* **91**, 178701 (2003). [[pdf](#)]

#### PREPRINTS

- M. Bech, C. Bergstrom, R. Garratt, and M. Rosvall *Mapping Change in the Federal Funds Market* [[FRB of New York Staff Report No. 507](#)].
- A. Viamontes Esquivel and M. Rosvall, *Compression of flow can reveal overlapping modular organization in networks* [[arXiv:1105.0812](#)].
- A. Mirshahvalad and M. Rosvall, *Reinforced communication and social navigation: remember your friends and remember yourself* (PRE, in press) [[arXiv:1101.5048](#)].
- M. Rosvall and K. Sneppen, *Dynamics of Opinions and Social Structures* [[arXiv:0708.0368](#)].

#### THESES

- *Information Horizons in a Complex World*, Ph.D. Thesis; Umeå University, Umeå (2006). [[pdf](#)]
- *Hide and Seek in a Complex World*, Licentiate Thesis; Umeå University, Umeå (2005). [[pdf](#)]
- *Complex Networks and Dynamics of an Information Network Model*, Master Thesis; Umeå University, Umeå (2003). [[pdf](#)]