

# LIST OF PUBLICATIONS

## Albert-László Barabási

### Books

1. A.-L. Barabási and H. E. Stanley, *Fractal Concepts in Surface Growth* (Cambridge University Press, Cambridge, 1995).
2. A.-L. Barabási, M. Krishnamurthy, F. Liu, and T. Pearsall (eds.), *Epitaxial Growth – Principles and Applications* (Materials Research Society, Vol. 570, Warrendale, PA, 1999).
3. J. Mirecki Millunchick, A.-L. Barabási, N. A. Modine, and E. D. Jones (eds.), *Morphological and Com-positional Evolution of Heteroepitaxial Semiconductor Thin Films* (Materials Research Society, Vol. 618, Warrendale, PA, 2000).
4. A.-L. Barabási, *Linked: The New Science of Networks* (Perseus, Cambridge, MA, 2002) [available in Check, Croatian, Chinese, Finnish, Hebrew, Hungarian, Italian, Japanese, Korean, Turkish].
5. M. Newman, D. Watts and A.-L. Barabási, *The Structure and Dynamics of Networks* (Princeton University Press, 2006).
6. A.-L. Barabási, *Bursts* (Perseus, Cambridge, MA, 2002) [available in Check, Croatian, Chinese, Finnish, Hebrew, Hungarian, Italian, Japanese, Korean, ,Transylvanian, Turkish]

### Review Articles

1. A.-L. Barabási, The physics of the Web, *Physics World* **14**, 33-38 (2001).
2. R. Albert and A.-L. Barabási, Statistical mechanics of complex networks, *Reviews of Modern Physics* **74**, 47-97 (2002).
3. Z.N. Oltvai and A.-L. Barabási, Life's complexity pyramid, *Science* **298**, 763-764 (2002).
4. A.-L. Barabási, E. Bonabeau, Scale-free networks, *Scientific American* **288**, 60-69 (2003).
5. A.-L. Barabási and Z.N. Oltvai, Network Biology: Understanding the cell's functional organization, *Nature Reviews Genetics* **5**, 101-113 (2004).
6. A.-L. Barabási, Taming complexity, *Nature Physics* **1**, 68-70 (2005).

### Book Chapters

1. D. Futer, A.-L. Barabási, S. V. Buldyrev, S. Havlin and H. Makse, Rough surfaces, in *Fractals in Science* (Springer-Verlag, New York, 1994).
2. J.K. Furdyna, S. Lee, A.-L. Barabási, and J.L. Merz, Self-Organized Low-Dimensional II-VI Nanostructures, in *II-VI Semiconductor Materials and Their Applications*, edited by M.C. Tamargo (Gordon and Breach Science Publishers, 1999).
3. A.-L. Barabási, Emergence of scaling in complex networks in, *Handbook of Graphs and Networks* (Wiley VHC, Weinheim, 2003).

4. A.-L. Barabási, Z. Dezso, E. Ravasz, S.-H. Yook, and Z. Oltvai, Scale-Free and hierarchical structures in complex networks, *Modeling of Complex Systems: Seventh Granada Lectures*, Spain (2002) (AIP, Melville New York, 2003).
5. S. Wuchty, E. Ravasz and A.-L. Barabási, The Architecture of Biological Networks, in T.S. Deisboeck, J. Yasha Kresh and T.B. Kepler (eds.) *Complex Systems in Biomedicine* (Kluwer Academic Publishing, New York, 2003).
6. A.-L. Barabási, Z. N. Oltvai, and S. Wuchty, Part IV: Biological Networks, in E. Ben-Naim, H. Frauenfelder, Z. Toroczkai (eds.) *Complex Networks*, Lect. Notes Phys., 650 (Springer, Berlin Heidelberg, 2004).
7. A.-L. Barabási, Science of Networks from Society to the Web in Kristof Nyiri (ed.), *A Sense of Place: The Global and the Local in Mobile Communication* (Passagen Verlag, Vienna, 2005).

### Journal Articles

1. A.-L. Barabási, L. Nitsch and I.A. Dorobantu, Supertracks and nth order windows in the chaotic regime, *Physics Letters A* **139**, 53–56 (1989).
2. A.-L. Barabási, L. Nitsch and I.A. Dorobantu, On crises and supertracks: An attempt of a unified theory, *Revue Roumanie de Physique* **34**, 353–357 (1989).
3. A.-L. Barabási and T. Vicsek, Tracing a diffusion-limited-aggregate: Self-affine versus self-similar scaling, *Physical Review A* **41**, 6881–6883 (1990).
4. A.-L. Barabási and T. Vicsek, Self-similarity of the loop structure of diffusion-limited-aggregates, *Journal of Physics A* **23**, L729–L733 (1990).
5. A.-L. Barabási and T. Vicsek, Multifractality of self-affine fractals, *Physical Review A* **44**, 2730–2733 (1991).
6. A.-L. Barabási, P. Szepefalusy and T. Vicsek, Multifractal spectra of multi-affine functions, *Physica A* **178**, 17–28 (1991).
7. T. Vicsek and A.-L. Barabási, Multi-affine model for the velocity distribution in fully turbulent flows, *Journal of Physics A* **24**, L845–L851 (1991).
8. A.-L. Barabási, A model for the temporal fluctuations of the surface width: A stochastic one-dimensional map, *Journal of Physics A* **24**, L1013–L1019 (1991).
9. A.-L. Barabási, R. Bourbonnais, M. Jensen, J. Kertesz, T. Vicsek and Y.-C. Zhang, Multifractality of growing surfaces, *Physical Review A* **45**, R6951–R6954 (1992).
10. S.V. Buldyrev, A.-L. Barabási, F. Caserta, S. Havlin, H.E. Stanley and T. Vicsek, Anomalous interface roughening in porous media: Experiment and model, *Physical Review A* **44**, R8313–R8316 (1992).
11. A.-L. Barabási, M. Araujo and H.E. Stanley, Three-dimensional Toom model: Connection to the Kardar-Parisi-Zhang Equation, *Physical Review Letters* **68**, 3729–3732 (1992).
12. A.-L. Barabási, Dynamic scaling of coupled nonequilibrium interfaces, *Physical Review A* **46**, R2977–R2980 (1992).
13. S.V. Buldyrev, A.-L. Barabási, S. Havlin, J. Kertesz, H.E. Stanley and H.S. Xenias, Anomalous roughening of interfaces in porous media: Experiment and model, in *International Conference on Fractals and Disordered Systems*, Hamburg, Germany, July 1992; *Physica A* **191**, 220–226 (1992).
14. A.-L. Barabási, Surfactant-mediated growth of nonequilibrium interfaces, *Physical Review Letters* **70**, 4102–4105 (1993).

15. A.-L. Barabási, Surfactant-mediated surface growth: Nonequilibrium theory, *Fractals* **1**, 846–859 (1993).
16. L.A.N. Amaral, A.-L. Barabási, S. V. Buldyrev, S. Havlin and H. E. Stanley, Anomalous interface roughening: The role of a gradient in the density of pinning sites, *Fractals* **1**, 818–826 (1993).
17. B. Suki, A.-L. Barabási and K. Lutchen, Lung tissue viscoelasticity: A mathematical framework and its molecular basis, *Journal Applied Physiology* **76**, 2749–2759 (1994).
18. L.A.N. Amaral, A.-L. Barabási, S. V. Buldyrev, S. Havlin and H. E. Stanley, A new exponent characterizing the effect of evaporation on imbibition experiments, *Physical Review Letters* **72**, 641–644 (1994).
19. P. Jensen, A.-L. Barabási, H. Larralde, S. Havlin and H.E. Stanley, Controlling nanostructures, *Nature* **368**, 22 (1994).
20. P. Jensen, A.-L. Barabási, H. Larralde, S. Havlin and H.E. Stanley, Model incorporating deposition, diffusion, and aggregation in submonolayer nanostructures, *Physical Review E* **50**, 618–621 (1994).
21. B. Suki, A.-L. Barabási, Z. Hantos, F. Petak and H. E. Stanley, Avalanches and power law behavior in lung inflation, *Nature* **368**, 615–618 (1994).
22. L.A.N. Amaral, A.-L. Barabási and H. E. Stanley, Universality classes for interface growth with quenched disorder, *Physical Review Letters* **73**, 62–65 (1994).
23. P. Jensen, A.-L. Barabási, H. Larralde, S. Havlin and H. E. Stanley, Deposition, diffusion and aggregation of atoms on surfaces: A model for nanostructure growth, *Physical Review B* **50**, 15316–15329 (1994).
24. P. Jensen, A.-L. Barabási, H. Larralde, S. Havlin and H.E. Stanley, Connectivity of diffusing particles continually deposited on a surface: Relation to LECBD experiments [ Proc. of ETOPIIM-3, Mexico, 1993] *Physica A* **207**, 219–227 (1994).
25. L.A.N. Amaral, A.-L. Barabási, S. V. Buldyrev, S.T. Harrington, S. Havlin, R. Sadr-Lahijani and H. E. Stanley, Avalanches and the directed percolation depinning model: Experiments, simulations and theory, *Physical Review E* **51**, 4655–4673 (1995).
26. R. Cuerno and A.-L. Barabási, Dynamic scaling of ion-sputtered surfaces, *Physical Review Letters* **74**, 4746–4749 (1995).
27. L.A.N. Amaral, A.-L. Barabási, H.A. Makse, and H. E. Stanley, Scaling properties of driven interfaces in disordered media, *Physical Review E* **52**, 4087–5005 (1995).
28. P. Jensen, A.-L. Barabási, H. Larralde, S. Havlin and H. E. Stanley, Growth and percolation of thin films: A model incorporating deposition, diffusion, and aggregation, *Chaos, Solutions, and Fractals* **6**, 227–232 (1995).
29. A.-L. Barabási, G. Grinstein, and M.A. Munoz, Directed surfaces in disordered media, *Physical Review Letters* **76**, 1481–1484 (1996).
30. A.-L. Barabási, S.V. Buldyrev, H. E. Stanley and B. Suki, Avalanches in the lung: A statistical mechanical approach, *Physical Review Letters* **76**, 2192–2195 (1996).
31. H. A. Makse, A.-L. Barabási, and H. E. Stanley, Elastic string in a random medium, *Physical Review E* **53** 6573–6576 (1996).
32. A.-L. Barabási, Invasion percolation and global optimization, *Physical Review Letters* **76**, 3750–3753 (1996).
33. P. Molinas-Mata, M.A. Munoz, D.O. Martinez, and A.-L. Barabási, The ballistic random walker, *Physical Review E* **54**, 968–971 (1996).

34. A.-L. Barabási and E. Kaxiras, Dynamic scaling in conserved systems with coupled fields: Application to surfactant-mediated growth, *Europhysics Letters* **36**, 129-134 (1996).
35. A.-L. Barabási, Roughening of growing surfaces: Kinetic models and continuum theories, *Computational Materials Science* **6**, 127-134 (1996).
36. A.-L. Barabási, Self-organized superlattice formation in II-VI and III-V semiconductors, *Applied Physics Letters* **70**, 764–767 (1996).
37. S. V. Buldyrev, L. A. N. Amaral, A.-L. Barabási, S. T. Harrington, S. Havlin, R. Sadr and H. E. Stanley, Avalanches and the Directed Percolation Depinning Model, [Proc. International Conf. on “Future of Fractals”] *Fractals* **4**, 307–319 (1996).
38. P. Jensen, A.-L. Barabási, H. Larralde, S. Havlin and H. E. Stanley, Fractal models for thin film growth, in [Proc. International Conference on the Future of Fractals, Aichi, Japan, 25-27 July, 1995] *Fractals* **4**, 321–329 (1996).
39. I. Daruka and A.-L. Barabási, Island formation and critical thickness in heteroepitaxy, *Physical Review Letters* **78**, 3027 (1997).
40. A.-L. Barabási, Self-assembled island formation in heteroepitaxial growth, *Applied Physics Letters* **70**, 2565-2567 (1997).
41. D. J. Hornbaker, R. Albert, I. Albert, A.-L. Barabási, and P. Schiffer, Why sand castles stand: an experimental study of wet granular media, *Nature* **387**, 765 (1997).
42. I. Daruka and A.-L. Barabási, Dislocation free island formation in heteroepitaxial growth: a study at equilibrium, *Physical Review Letters* **79**, 3708–3711 (1997).
43. M. A. Makeev and A.-L. Barabási, Ion-induced surface diffusion in ion sputtering, *Applied Physics Letters* **71**, 2800–2802 (1997).
44. R. Albert, I. Albert, D. Hornbaker, P. Schiffer and A.-L. Barabási, Maximum angle of stability in wet and dry spherical granular media, *Physical Review E* **56**, R6271–R6274 (1997).
45. J. K. Furdyna, S. Lee, I. Daruka, C.S. Kim, A.-L. Barabási, M. Dobrowolska, and J.L. Merz, Self-assembled growth of II-VI quantum dots, *Nonlinear Optics* **18**, 85–92 (1997).
46. I. Derenyi, C.-S. Lee, and A.-L. Barabási, Ratchet effect in surface electromigration: smoothing surfaces by an AC field, *Physical Review Letters* **80**, 1473–1476 (1998).
47. M. A. Makeev and A.-L. Barabási, Secondary ion changes on rippled interfaces, *Applied Physics Letters* **72**, 906–908 (1998).
48. I. Daruka and A.-L. Barabási, Equilibrium phase diagrams for dislocation free self-assembled quantum dots, *Applied Physics Letters* **72**, 2102–2104 (1998).
49. M. A. Makeev and A.-L. Barabási, Effect of the surface roughness on the secondary ion yield in ion sputtering, *Applied Physics Letters* **73**, 1445–1447 (1998).
50. U. Frey, M. Silverman, A.-L. Barabási, and B. Suki, Irregularities and power law distributions in the breathing pattern in preterm and term infants, *Journal of Applied Physiology* **85**, 789–797 (1998).
51. R. Albert, A.-L. Barabási, N. Carle, and A. Dougherty, Driven interfaces in disordered media: determination of universality classes from experimental data, *Physical Review Letters* **81**, 2926-2929 (1998).
52. S. Lee, I. Daruka, C. S. Kim, A.-L. Barabási, J. L. Merz, and J. K. Furdyna, Dynamics of ripening of self-assembled II-VI semiconductor quantum dots, *Physical Review Letters* **81**, 3479-3482 (1998).
53. C. Lee and A.-L. Barabási, Spatial ordering of self-organized islands grown on patterned surfaces, *Applied Physics Letters* **73**, 2651-2653 (1998).

54. A. Czirok, A.-L. Barabási, and T. Vicsek, Collective motion of self-propelled particles: Kinetic phase transition in one dimension, *Physical Review Letters* **82**, 209–212 (1999).
55. R. Albert, M.A. Pfeifer, P. Schiffer, and A.-L. Barabási, Drag force in granular medium, *Physical Review Letters* **82** 205–208 (1999).
56. I. Daruka, J. Tersoff, and A.-L. Barabási, Shape transition in growth of strained islands, *Physical Review Letters* **82**, 2753–2756 (1999).
57. A.-L. Barabási, R. Albert, and P. Schiffer, The physics of sandcastles: Maximum angle of stability in wet and dry granular media, *Physica A* **266**, 366-371 (1999).
58. C.-S. Lee, B. Janko, I. Derenyi, and A.-L. Barabási, Reducing vortex density in superconductors using the ratchet effect, *Nature* **400**, 337–340 (1999).
59. S. Lee, I. Daruka, C. S. Kim, A.-L. Barabási, J. K. Furdyna, and J. L. Merz, Comment on “Dynamics of ripening of self-assembled II-VI semiconductor quantum dots”, Lee et al. reply, *Physical Review Letters* **83** 240 (1999).
60. I. Daruka, A.-L. Barabási, S.J. Zhou, T.C. Germann, P.S. Lomdahl, and A.R. Bishop, Molecular dynamics investigation of the surface stress distribution in a Si/Ge quantum dot superlattice, *Physical Review* **B 60**, R2150-R2153 (1999).
61. P. Tegzes, R. Albert, M. Paskvan, A.-L. Barabási, T. Vicsek, and P. Schiffer, Liquid-induced transitions in granular media, *Physical Review* **E 60**, 5823–5826 (1999).
62. R. Albert, H. Jeong, and A.-L. Barabási, Diameter of the world wide web, *Nature* **401**, 130-131 (1999).
63. A.-L. Barabási, and R. Albert, Emergence of scaling in random networks, *Science* **286**, 509–512 (1999).
64. A.-L. Barabási, R. Albert, and H. Jeong, Mean-field theory for scale-free random networks, *Physica A* **272**, 173–187 (1999).
65. S. Park, B. Kahng, H. Jeong, and A.-L. Barabási, Dynamics of ripple formation in sputter erosion: nonlinear phenomena, *Physical Review Letters* **83**, 3486–3489 (1999).
66. A.-L. Barabási, Thermodynamic and kinetic mechanisms in self-assembled quantum dot formation, *Materials Science and Engineering* **B 67**, 23–30 (1999).
67. Z. Neda, E. Ravasz, Y. Brechet, T. Vicsek, A.-L. Barabási, Self-organizing processes: The sound of many hands clapping, *Nature* **403**, 849-850 (2000).
68. I. Albert, P. Tegzes, B. Kahng, R. Albert, J.G. Sample, M. Pfeifer, A.-L. Barabási, T. Vicsek, and P. Schiffer, Jamming and fluctuations in granular drag, *Physical Review Letters* **84**, 5122–5125 (2000).
69. Z. Neda, E. Ravasz, T. Vicsek, Y. Brechet, A.-L. Barabási, Physics of the rhythmic applause, *Physical Review E* **61**, 6987-6992 (2000).
70. R. Albert and A.-L. Barabási, Dynamics of complex systems: Scaling laws for the period of boolean networks, *Physical Review Letters* **84**, 5660-5663(2000).
71. A.-L. Barabási, R. Albert, and H. Jeong, Scale-free characteristics of random networks: The topology of the world wide web, *Physica A* **281**, 69–77 (2000).
72. A.-L. Barabási, R. Albert, H. Jeong, and G. Bianconi, Power-law distribution of the World Wide Web, *Science* **287**, 2115 (2000).
73. R. Albert, H. Jeong, and A.-L. Barabási, Error and attack tolerance of complex networks, *Nature* **406**, 378–482 (2000).
74. H. Jeong, B. Tombor, R. Albert, Z. Oltvai, A.-L. Barabási, The large-scale organization of metabolic networks, *Nature* **407**, 651–655 (2000).

75. R. Albert, and A.-L. Barabási, Topology of complex networks: Local events and universality, *Physical Review Letters* **85**, 5234-5237 (2000).
76. B. Kahng, H. Jeong, and A.-L. Barabási, Quantum dot and hole formation in sputter erosion, *Applied Physics Letters* **78**, 805-807 (2001).
77. H. Jeong, S.P. Mason, A.-L. Barabási, and Z.N. Oltvai, Lethality and centrality in protein networks, *Nature* **411**, 41-42 (2001).
78. G. Bianconi and A.-L. Barabási, Bose-Einstein condensation in complex networks, *Physical Review Letters* **86**, 5632-5635 (2001).
79. J. Podani, Z. N. Oltvai, H. Jeong, B. Tombor, A.-L. Barabási, and E. Szathmary, Comparable system-level organization of Archea and Eucaryotes, *Nature Genetics* **29**, 54-56 (2001).
80. A.-L. Barabási, E. Ravasz, and T. Vicsek, Deterministic scale-free networks, *Physica A* **299**, 559-564 (2001)
81. I. Albert, P. Tegzes, R. Albert, J.G. Sample, A.-L. Barabási, T. Vicsek, B. Kahng, P. Schiffer, Stick-slip fluctuations in granular drag, *Physical Review E*, 031307 (2001).
82. B. Kahng, H. Jeong, A.-L. Barabási, Nanoscale structure formation on sputter eroded surface, *Journal of the Korean Physical Society* **39**, 421-424 (2001).
83. A.-L. Barabási, V.W. Freeh, H. Jeong, J. Brockman, Parasitic computing, *Nature* **412**, 894-897 (2001).
84. I. J. Farkas, I. Derenyi, A.-L. Barabási, T. Vicsek, Spectra of “real-world” graphs: Beyond the semi-circle law, *Physical Review E*, 026704 (2001).
85. S. H. Yook, H. Jeong, A.-L. Barabási, Y. Tu, Weighted evolving networks, *Physical Review Letters* **86**, 5835-5838 (2001).
86. G. Bianconi A.-L. Barabási, Competition and multiscaling in evolving networks, *Europhysics Letters* **54**, 436-442 (2001).
87. C.S. Lee, B. Kahng, A.-L. Barabási, Spatial ordering of stacked quantum dots, *Applied Physics Letters* **78**, 984-986 (2001).
88. B. Kahng, I. Albert, P. Schiffer, A.-L. Barabási, Modeling relaxation and jamming in granular media, *Physical Review E* **64**, 051303 (2001).
89. I. Albert, J. G. Sample, A. J. Morss, S. Rajagopalan, A.-L. Barabási, and P. Schiffer, Granular drag on a discrete object: Shape effects on jamming, *Physical Review E* **64**, 061303 (2001).
90. M. Makeev, R. Cuerno, and A.-L. Barabási, Morphology of ion-sputtered surfaces, *Nuclear Instruments and Methods B* **197**, 185-227 (2002).
91. R.J. Williams, N.D. Martinez, E.L. Berlow, J.A. Dunne, and A.-L. Barabási, Two degrees of separation in complex food webs, *Proceedings of the National Academy of Sciences* **99**, 12913-12916 (2002).
92. A.L. Barabási, H. Jeong, Z. Neda, E. Ravasz, A. Schubert, T. Vicsek, Evolution of the social network of scientific collaborations, *Physica A* **311**, 590-614 (2002).
93. R. Albert, A.-L. Barabási, Statistical mechanics of complex networks, *Reviews of Modern Physics* **74**, 47-97 (2002).
94. Z. Dezso and A.-L. Barabási, Halting viruses in scale-free networks, *Physical Review E* **65**, 055103(R) (2002).
95. S. H. Yook, H. Jeong, and A.-L. Barabási, Modeling the internet’s large-scale topology, *Proceedings of the National Academy of Sciences* **99**, 13382-13386 (2002).

96. E. Ravasz, A. L. Somera, D. A. Mongru, Z. N. Oltvai, and A.-L. Barabási, Hierarchical organization of modularity in metabolic networks, *Science* **297**, 1551-1555 (2002).
97. N. Schwartz, R. Cohen, D. ben-Avraham, A.-L. Barabási, and S. Havlin, Percolation in directed scale-free networks, *Physical Review E* **66**, 015104(R) (2002).
98. H. Jeong, B. Kahng, S. Lee, C. Y. Kwak, A.-L. Barabási, J. K. Furdyna, Monte Carlo simulation of sinusoidally modulated superlattice growth, *Physical Review E* **65**, 031602 (2002).
99. Z. N. Oltvai and A.-L. Barabási, Life's complexity pyramid, *Science* **298**, 763-764 (2002).
100. I. Farkas, I. Derenyi, H. Jeong, Z. Neda, Z.N. Oltvai, E. Ravasz, A. Schubert, A.-L. Barabási, and T. Vicsek, Networks in life: scaling properties and eigenvalue spectra, *Physica A* **314**, 25-34 (2002).
101. J. Kim, B. Kahng, A.-L. Barabási, Nanoscale wire formation on sputter-eroded surfaces, *Applied Physics Letters* **81**, 3654-3656 (2002).
102. H. Jeong, Z.N. Oltvai, and A.-L. Barabási, Prediction of protein essentiality based on genomic data, *ComplexUs* **1**, 19-28 (2003).
103. H. Jeong, Z. Neda, and A.-L. Barabási, Measuring preferential attachment for evolving networks, *Europhysics Letters* **61**, 567-572 (2003).
104. I. Yang, H. Jeong, B. Kahng, and A.-L. Barabási, Emerging behavior in electronic bidding, *Physical Review E* **68**, 016102 (2003).
105. I. Farkas, H. Jeong, T. Vicsek, A.-L. Barabási, and Z. N. Oltvai, The topology of the transcription regulatory network in the yeast *S. cerevisiae*, *Physica A* **318**, 601-612 (2003).
106. E. Ravasz and A.-L. Barabási, Hierarchical organization in complex networks, *Physical Review E* **67**, 026112 (2003).
107. Z. Dezsó, Z.N. Oltvai and A.-L. Barabási, Bioinformatics analysis of experimentally determined protein complexes in the yeast *Saccharomyces cerevisiae*, *Genome Research* **13**, 2450-2454 (2003).
108. H. Jeong, Z. Neda, and A.-L. Barabási, Measuring preferential attachment for evolving networks, *Europhysics Letters* **61**, 567-572 (2003).
109. G. Balazsi, K. A. Kay, A.-L. Barabási and Z. Oltvai Spurious spatial periodicity of co-expression in microarray data due to printing design, *Nucleic Acids Research* **31**, 4425-4433 (2003).
110. S. Y. Gerdes, M. D. Scholle, J. W. Campbell, G. Balazsi, E. Ravasz, M. D. Daugherty, A. L. Somera, N. C. Kyrpides, I. Anderson, M. S. Gelfand, A. Bhattacharya, V. Kapatral, M. D'Souza, M. V. Baev, Y. Grechkin, F. Mseeh, M. Y. Fonstein, R. Overbeek, A.-L. Barabási, Z. N. Oltvai, and A. L. Osterman, Experimental determination and system level analysis of essential genes in *Escherichia coli* MG1655, *Journal of Bacteriology* **185**, 5673-5684 (2003).
111. S. Wuchty, Z. N. Oltvai and A.-L. Barabási, Evolutionary conservation of motif constituents in the yeast protein interaction network, *Nature Genetics* **35**, 176-179 (2003).
112. R. Dobrin, Q.K. Beg and A.-L. Barabási, Aggregation of topological motifs in the *Escherichia coli* transcriptional regulatory networks, *BMC Bioinformatics* **5**, 10 (2004).
113. E. Almaas, B. Kovacs, T. Vicsek, Z. N. Oltvai and A.-L. Barabási, Global organization of metabolic fluxes in the bacterium *Escherichia coli*, *Nature* **427**, 839-843 (2004).
114. S. Y. Yook, Z. N. Oltvai and A.-L. Barabási, Functional and topological characterization of protein interaction networks, *Proteomics* **4**, 928-942 (2004).
115. M. Argollo de Menezes and A.-L. Barabási, Fluctuations in network dynamics, *Physical Review Letters* **92**, 028701 (2004).
116. A.-L. Barabási and Z. N. Oltvai, Network Biology: Understanding the Cell's Functional Organization, *Nature Reviews Genetics* **5**, 101-113 (2004).

117. A.-L. Barabási, M. Argollo de Menezes, S. Balensiefer, and J. Brockman, Hot spots and universality in network dynamics, *Europhysics Journal B* **38**, 169-175 (2004).
118. M. Argollo de Menezes and A.-L. Barabási, Separating the internal and external dynamics of complex systems, *Physical Review Letters* **93**, 068701 (2004).
119. G. Palla, I. Farkas, I. Derenyi, A.-L. Barabási, T. Vicsek, Reverse engineering of linking preferences from network restructuring, *Physical Review E* **70**, 046115 (2004).
120. M.A. Makeev, and A.-L. Barabási, Effect of surface morphology on the sputtering yields: I. Ion sputtering from self-affine surfaces, *Nuclear Instruments & Methods in Physics Research Section B-Beam Interactions with Materials and Atoms* **222**, 316-334 (2004).
121. M.A. Makeev, and A.-L. Barabási, Effect of surface morphology on the sputtering yields: II. Ion sputtering from rippled surfaces, *Nuclear Instruments & Methods In Physics Research Section B-Beam Interactions with Materials and Atoms* **222**, 335-354 (2004).
122. L.A.N. Amaral, A. Barrat, A.-L. Barabási, G. Caldarelli, P. De los Rios, A. Erzan, B. Kahng, R. Mantegna, J.F.F. Mendes, R. Pastor-Satorras, and A. Vespignani, Virtual Round Table on ten leading questions for network research, *European Physics Journal B* **38**, 143-145 (2004).
123. A. Vazquez, R. Dobrin, D. Sergi, J.-P. Eckmann, Z.N. Oltvai, and A.-L. Barabási, The topological relationship between the large-scale attributes and local interactions patterns of complex networks, *Proceedings of the National Academy of Sciences* **101**, 17940-17945 (2004).
124. Z. Eisler, J. Kertesz, S.-H. Yook, and A.-L. Barabási, Multiscalling and non-universality in fluctuations of driven complex systems, *Europhysics Letters* **69**, pp. 664-670 (2005).
125. P. J. Macdonald, E. Almaas, and A.-L. Barabási, Minimum spanning trees of weighted scale-free networks, *Europhysics Letters* **72** (2): 308-314 (2005).
126. A. Vazquez, J. G. Oliveira, and A.-L. Barabási, Inhomogeneous evolution of subgraphs and cycles in complex networks, *Physical Review E* **71**, 025103(Rd) (2005).
127. A.-L. Barabási, Network Theory-The emergence of creative enterprise, *Science* **308**, 639 (2005).
128. A.-L. Barabási, The origin of bursts and heavy tails in humans dynamics, *Nature* **435**, 207 (2005).
129. G. Balazsi, A.-L. Barabási, and Z. N. Oltvai, Topological units of environmental signal processing in the transcriptional regulatory network of Escherichia coli, *Proceedings of the National Academy of Sciences* **102**: 7841-7846 (2005).
130. J.G. Oliveira and A.-L. Barabási, Darwin and Einstein correspondence patterns, *Nature* **437**, 1251 (2005).
131. A.-L. Barabási, Taming complexity, *Nature Physics* **1**, 68-70 (2005).
132. E. Almaas, Z. N. Oltvai and A.-L. Barabási, The activity reaction core and plasticity of metabolic networks, *PLoS Computational Biology* **1**, 0557-0563 (2005).
133. P. J. Macdonald, E. Almaas, A.-L. Barabási, Minimum spanning trees of weighted scale-free networks, *Europhysics Letters* **72** (2), 308-314 (2005).
134. M.A. Makeev, I. Derenyi I, A.-L. Barabási, Emergence of large-scale vorticity during diffusion in a random potential under an alternating bias, *Physical Review E* **71** (2), 026112 (2005).
135. G. Balazsi, A.-L. Barabási, Z. Oltvai, Functional organization of transcriptional-regulatory networks, *FEBS Journal* **272**, 103 (2005).
136. A.-L. Barabási, Network biology from the metabolism to protein interactions, *FEBS Journal*, **272**, 433 (2005).
137. S. Wuchty, A.-L. Barabási, M.T. Ferdig, Stable evolutionary signal in a yeast protein interaction network, *BMC Evolutionary Biology* **6**, 8 (2006).



138. A. Vazquez, J.G. Oliveira, Z. Dezso, K.I. Goh, I. Kondor, A.-L. Barabási. Modeling bursts and heavy tails in human dynamics, *Physical Review E* **73**, 036127 (2006).
139. G. Madey, G. Szabó, A.-L. Barabási, WIPER: The integrated wireless phone based emergency response system, *Lecture Notes in Computer Science* **3993**, 417-424 (2006).
140. J. Lim, T. Hao, C. Shaw, A.J. Patel, G. Szabó, J.F. Rual, C.J. Fisk, N. Li, A. Smolyar, D.E. Hill, A.-L. Barabási, M. Vidal, H.Y. Zoghbi, A protein-protein interaction network for human inherited ataxias and disorders of Purkinje cell degeneration, *Cell* **125**, 801-814 (2006).
141. Z. Dezso, E. Almaas, A. Lukács, B. Rácz, I. Szakadát, A.-L. Barabási, Dynamics of information access on the web, *Physical Review E* **73**, 066132 (2006).
142. J.G. Oliveira, A.-L. Barabási, Reply to 'Correspondence patterns - Mechanisms and models of human dynamics', *Nature* **441**, E5-E6 (2006).
143. A. Vazquez, B. Racz, A. Lukacs, A.-L. Barabasi, Impact of non-Poissonian activity patterns on spreading processes, *Physical Review Letters* **98** (15): Art. No. 158702 (2007).
144. Gonzalez, M. C., Barabasi A.-L., Complex networks - From data to models, *Nature Physics* **3** (4): 224-225 (2007).
145. G. Palla, A.-L. Barabasi, T. Vicsek, Quantifying social group evolution, *Nature* **446** (7136): 664-667 (2007).
146. J.-P. Onnela, J. Saramaki, J. Hyvonen, G. Szabo, D. Lazer, K. Kaski, J. Kertesz, and A.-L. Barabasi, Structure and tie strengths in mobile communication networks, *Proceedings of the National Academy of Science* **18**, 7332-7336 (2007).
147. Q. K. Beg, A. Vazquez, J. Ernst, M. A. de Menezes, Z. Bar-Joseph, A.-L. Barabási, and Z. N. Oltvai, Intracellular crowding defines the mode and sequence of substrate uptake by Escherichia coli and constrains its metabolic activity, *Proceedings of the National Academy of Science* **104**, No. 31, 12663-12668 (31 July 2007).
148. A.-L. Barabási, Network Medicine - From Obesity to the "Diseasome", *New England Journal of Medicine* **357**, No. 4, 404-407 (27 July 2007).
149. C. A. Hidalgo. R. B. Klinger, A.-L. Barabási, and R. Haussmann, The Product Space Conditions the Development of Nations, *Science* **317**, (27 July 2007).
150. D. Dupuy, N. Bertin, C. A. Hidalgo, K. Venkatesan, D. Tu, D. Lee, J. Rosenberg, N. Svrzikapa, A. Blanc, A. Carnec, A.-R. Carvunis, R. Pulak, J. Shingles, J. Reece-Hoyes, R. Hunt-Newbury, R. Viveiros, W. A. Mohler, M. Tasan, F. P. Roth, C. Le Peuch, I. A. Hope, R. Johnsen, D. G. Moerman, A.-L. Barabási, D. Baillie and M. Vidal, Genome-scale analysis of in vivo spatiotemporal promoter activity in *Caenorhabditis elegans*, *Nature Biotechnology* **25**, No. 6 (June 2007).
151. J. Park, A.-L. Barabási. Distribution of Node Characteristics in Complex Networks, *Proceedings of the National Academy of Science* **104**, 17916-17920 (13 Nov 2007).
152. M.A. Yildirim, K.-L. Goh, M.E. Cusick, A.-L. Barabási. Drug Target Network. *Nature Biotechnology* **25:10** 1119-1126 (1 Oct 2007).
153. J. Loscalzo, I. Kohane, A.-L. Barabási. Human Disease Classification in the Postgenomic era: A Complex Systems Approach to Human Pathobiology. *Molecular Systems Biology* **3** 179 (28 June 2007).
154. A.-L. Barabási. The Architecture of Complexity. *IEEE Control Systems Magazine* **27:4** (2007).
155. M. A. Yildirim, K.-L. Goh, M.E. Cusick, A.-L. Barabási, M. Vidal, Drug-target network, *Nature Biotechnology* **25:10** (2007).

156. J. Park, A.-L. Barabási, Distribution of node characteristics in complex networks, *Proceedings of the National Academy of Sciences* **104** (2007).
157. A. Motter, N. Gulbahce, E. Almaas, A.-L. Barabási, Predicting synthetic rescues in metabolic networks, *Molecular Systems Biology* **4:168** (2008).
158. K.-L. Goh, A.-L. Barabási, Burstiness and memory in complex systems, *Europhysics Letters* **81** (2008).
159. A. Vazquez, Q. K. Beg, M. A. de Menezes, J. Ernst, Z. Bar-Joseph, A.-L. Barabási, L. G. Boros, Z. N. Oltvai, Impact of the solvent capacity constraint on E. coli metabolism, *BMC Systems Biology* **2:7** (2008).
160. J. Candia, M. C. Gonzalez, P. Wang, T. Schoenharl, G. Madey, A.-L. Barabási, Uncovering individual and collective human dynamics from mobile phone records, *Journal of Physics A: Mathematical and Theoretical* **41** (2008).
161. M. C. González, C. A. Hidalgo, A.-L. Barabási, Understanding individual human mobility patterns, *Nature* **453** (2008).
162. D.-S. Lee, J. Park, K. A. Kay, N. A. Christakis, Z. N. Oltvai, A.-L. Barabási, The implications of human metabolic network topology for disease comorbidity, *Proceedings of the National Academy of Sciences* **105** (2008).
163. H. Yu, P. Braun, M. A. Yildirim, I. Lemmens, K. Venkatesan, J. Sahalie, T. Hirozane-Kishikawa, F. Gebreab, N. Li, N. Simonis, T. Hao, J.-F. Raul, A. Dricot, A. Vazquez, R. R. Murray, C. Simon, L. Tardivo, S. Tam, N. Svrzikapa, C. Fan, A.-S. de Smet, A. Motyl, M. E. Hudson, J. Park, X. Xin, M. E. Cusick, T. Moore, C. Boone, M. Snyder, F. P. Roth, A.-L. Barabási, J. Tavernier, D. E. Hill, M. Vidal, High-Quality Binary Protein Interaction Map of the Yeast Interactome Network, *Science* **322**, 104-110 (2008).
164. A. Vazquez, M. A. de Menezes, A.-L. Barabási, Z. N. Oltvai, Impact of Limited Solvent Capacity on Metabolic Rate, Enzyme Activities, and Metabolite Concentrations of *S.cerevisiae* Glycolysis, *PLoS Computational Biology* **4:10**, 1-6 (2008).
165. K. Venkatesan, J.-F. Rual, A. Vazquez, U. Stelzl, I. Lemmens, T. Hirozane-Kishikawa, T. Hao, M. Zenkner, X. Xin, K.-I. Goh, M. A. Yildirim, N. Simonis, J. M. Sahalie, S. Cevik, C. Simon, A.-S. de Smet, E. Dann, A. Smolyar, A. Vinayagam, H. Yu, D. Szeto, H. Borick, A. Dricot, N. Klitgord, R. R. Murray, C. Lin, M. Lalowski, J. Timm, A. Rau, C. Boone, P. Braun, M. E. Cusick, F. P. Roth, D. Hill, J. Tavernier, E. E. Wanker, A.-L. Barabasi, M. Vidal, An empirical framework for binary interactome mapping, *Nature Methods* **6**, 83-89 (2009).
166. D. Lazer, A. Pentland, L. Adamic, S. Aral, A.-L. Barabási, D. Brewer, N. Christakis, N. Contractor, J. Fowler, M. Gutmann, T. Jebara, G. King, M. Macy, D. Roy, M. Van Alstyne, Computation Social Science, *Science* **323**, 721-724 (2009).
167. J. Park, D. S. Lee, N. A. Christakis, A.-L. Barabási, The impact of cellular networks on disease comorbidity, *Molecular Systems Biology* **5:262**, 1-7 (2009).
168. C. A. Hidalgo, N. Blumm, A.-L. Barabási, N. A. Christakis, A dynamic network approach for the study of human phenotypes, *PLoS Computational Biology* **5:4**, 1-11 (2009).
169. P. Wang, M. Gonzalez, C. A. Hidalgo, A.-L. Barabási, Understanding the spreading patterns of mobile phone viruses, *Science* **324**, 1071-1076 (2009).
170. D.-S. Lee, H. Burd, J. Liu, E. Almass, O. Weist, A.-L. Barabási, Z. N. Oltvai, V. Kapatra, Comparative Genome-Scale Metabolic Reconstruction and Flux Balance Analysis of Multiple *Staphylococcus aureus* Genomes Identify Novel Antimicrobial Drug Targets, *Journal of Bacteriology* **191:12**, 4015-4024 (2009).
171. A.-L. Barabási, Scale-Free Networks: A Decade and Beyond, *Science* **325**, 412-413 (2009).

## Papers published in proceedings

1. S. Havlin, A.-L. Barabási, S.V. Buldyrev, C.K. Peng, M. Schwartz, H.E. Stanley and T. Vicsek, Anomalous interface roughening: Experiment and models, in Growth Patterns in Physical Sciences and Biology (E. Louis, L. Sander and P. Meakin, eds.). [PROC. 1991 NATO ADVANCED RESEARCH WORKSHOP, Granada, Spain, October 1991] (Plenum, NY, 1993), pp. 85–98.
2. A.-L. Barabási, S.V. Buldyrev, S. Havlin, G. Huber, H.E. Stanley and T. Vicsek, Imbibition in porous media: Experiment and theory in Surface disordering: Growth, roughening and phase transitions (R. Jullien, J. Kertész, P.Meakin, and D.E. Wolf, eds.) [ PROC. OF THE LES HOUCHES WORKSHOP, 1992] (Nova Science, New York 1992).
3. R. Cuerno and A.-L. Barabási, Roughening by ion bombardment: A stochastic continuum equation, [PROC. MATERIALS RESEARCH SOCIETY Fall Meeting, 299-304, Boston 1994] (Materials Research Society, Pittsburgh, 1994).
4. A.-L. Barabási and R. Cuerno, Fractal and non-fractal surfaces in ion sputtering [Disordered Materials and Interfaces, PRO. MATERIALS RESEARCH SOCIETY Fall Meeting, Vol. 407, Pg. 259, Boston 1995] (Materials Research Society, Pittsburgh, 1995).
5. P. Jensen, L. Bardotti, A.-L. Barabási, H. Larralde, S. Havlin and H.E. Stanley, Why are computer simulations of growth useful? in Disordered Materials and Interfaces [PROC. SYMPOSIUM OF MATERIALS RESEARCH SOCIETY, 1995], edited by H. Z. Cummins, D. J. Durian, D. L. Johnson, and H. E. Stanley (Materials Research Society, Pittsburgh, 1996), pp. 391–398.
6. A.-L. Barabási, M.A. Makeev, C.S. Lee, and R. Cuerno, Roughening of ion-eroded surfaces, in Dynamics of Fluctuating Interfaces and Related Phenomena, [The 4th CTP Workshop on Statistical Physics, Seoul, Korea, January 27-31, 1997], edited by D. Kim, H. Park, and B. Kahng (World Scientific, Singapore, 1997), pg. 131–150.
7. J.L. Merz, A.-L. Barabási, R.S. Williams, and J.K. Furdyna, Nanostructure self assembly as an emerging technology, in Future trends in microelectronics: Off the beaten path”, edited by S. Luryi, J. Xu, and A. Zaslavsky (Wiley, 1999).
8. C.-S. Lee, I. Derényi, and A.-L. Barabási, Smoothing surfaces by an ac field: an application of the ratchet effect, in Epitaxial growth, [PROC. SYMPOSIUM OF MATERIALS RESEARCH SOCIETY, SAN FRANCISCO, 1999] edited by A.L. Barabási, F.Liu, and T. Pearsall (Materials Research Society, Pittsburgh, 1999).
9. A.-L. Barabási, B. Kahng, H. Jeong, and S. Park, Nonlinear ripple formation in sputter erosion, [PROC. SYMPOSIUM OF MATERIALS RESEARCH SOCIETY, Boston, 1999] edited by E. Chason, B. Cooper, and B. Harper (Materials Research Society, Pittsburgh, 2000).
10. I. Albert, P. Tegzes, R. Albert, J. Sample, A.-L. Barabási, T. Vicsek, B. Kahng, and P. Schiffer, An experimental study of the fluctuations in granular drag, [PROC. SYMPOSIUM OF MATERIALS RESEARCH SOCIETY, San Francisco, Spring 2000] (Materials Research Society, Pittsburgh, 2000).
11. A.-L. Barabási, Z. Dezso, E. Ravasz, S.-H. Yook, and Z. Oltvai, Scale-Free and hierarchical structures in complex networks, [SEVENTH GRANADA LECTURES, Spain (2002) Modeling of Complex Systems (AIP, Melville New York, 2003).
12. A.-L. Barabási, E. Ravasz and Z. Oltvai, Hierarchical organization of modularity in complex networks, [PROC. OF THE XVIII SITGES CONFERENCE ON STATISTICAL MECHANICS, Sitges, Barcelona, Spain, June 2002], Eds. R. Pastor-Satorras, J. M. Rubi, and A. Diaz-Guilera (Springer, Berlin, 2003).
13. A.-L. Barabási and M. A. de Menezes, “Hot spots and universality in network dynamics”, [PROC. OF THE CONFERENCE ON GROWING NETWORKS AND GRAPHS IN STATISTICAL

PHYSICS: FINANCE, BIOLOGY AND SOCIAL SYSTEMS, Rome 2003], Europhysics Journal B (in press, 2003).

### **Book and Journal Reviews**

1. A.-L. Barabási, Across the boundaries: Review of Interfaces and Free Boundaries, Nature 407, 297 (2000).
2. A.-L. Barabási, Review of Evolution of Networks: From Biological Nets to the Internet and WWW, Physics Today (in press, 2004).

### **Doctoral Dissertations Directed**

1. I. Daruka, “Strained island formation in heteroepitaxy”, (University of Notre Dame, 1999).
2. M.A. Makeev, “Morphologies of ion sputtered surfaces”, (University of Notre Dame, 1999).
3. C.S. Lee, “The Monte Carlo method and thermal ratchets in condensed matter physics”, (University of Notre Dame, 2000).
4. R. Albert, “Statistical Mechanics of Complex Networks”, (University of Notre Dame, 2001).
5. G. Bianconi, “Quantum Statistics in Complex Networks”, (University of Notre Dame, 2002).
6. S. H. Yook, “From the topology to the dynamics of complex networks”, (University of Notre Dame, 2004).
7. E. Ravasz, “Evolution, hierarchy and modular organization in complex networks”, (University of Notre Dame, 2004).
8. Z. Dezso, “The topology and dynamics of complex networks”, (University of Notre Dame, 2005).
9. C. Hidalgo, “Three empirical studies on the aggregate dynamics of humanly driven complex systems”, (University of Notre Dame, 2008).

### **Invited talks**

1. Harvard University, Condensed Matter Theory Seminar, Cambridge, MA, 1994, “Surfactant-mediated growth of nonequilibrium interfaces.”
2. Cornell University, LASSP Theory Seminar, Ithaca, NY, 1994, “Surfactant-mediated surface growth: Nonequilibrium approach.”
3. IBM, T.J. Watson Center, March 1994, Yorktown Heights, NY, “Interface roughening in porous media.”
4. Emory University, Department of Physics Colloquium, 1994, Atlanta, GA, “Interfaces in porous medium: Pinning, depinning and scaling.”
5. American Physical Society March Meeting, 1995, “Interface motion in disordered media.”
6. Vanderbilt University, Department of Physics & Astronomy Colloquium, 1995, Nashville, TN, “Interface motion in disordered media.”
7. University of Notre Dame, Department of Physics Colloquium, 1995, Notre Dame, IN, “Dynamic scaling of ion-sputtered surfaces.”
8. Roland Eötvös University, Department of Atomic Physics, 1995, Budapest, Hungary, “Scaling properties of interfaces in porous media.”

9. Rockefeller University, Department of Physics, 1995, New York, NY, "Avalanches and power law behavior in lung inflation."
10. Virtual MBE Workshop, Hughes Research Labs, 1995, "Strengths and/or weaknesses of kinetic models."
11. Materials Research Society Fall Meeting, 1995, Boston, MA, "Fractal and non-fractal surfaces in ion sputtering."
12. Universidad Simón Bolívar, Department of Physics, 1996, Caracas, Venezuela, Condensed Matter Seminar, "Morphology of ion-sputtered surfaces."
13. INTEVEP, 1996, Caracas, Venezuela, "Interface motion in porous media."
14. Universidad Central, Department of Physics, 1996, Caracas, Venezuela, "Morphology of ion-sputtered surfaces."
15. Michigan State University, Department of Physics, Condensed Matter Seminar, 1996, East Lansing, MI, "Dynamic scaling of ion-sputtered surfaces."
16. University of Michigan, Department of Physics, Condensed Matter Seminar, 1996, Ann Arbor, MI, "Dynamic scaling of ion-sputtered surfaces."
17. Technical University of Budapest, Department of Theoretical Physics, Theoretical Physics Seminar, 1996, Budapest, Hungary, "Scaling properties of ion-bombarded surfaces."
18. Lund University, Department of Solid State Physics, Lund, Sweden, "Island size distributions in sub-monolayer epitaxy."
19. Conference on New Developments and Applications in Stochastic PDEs, Los Alamos National Laboratory, Center for Nonlinear Studies, July 1996, Los Alamos, NM, "Morphology of Ion-Sputtered Surfaces: Connections to the Kardar-Parisi-Zhang and Kuramoto-Sivashinsky Equations."
20. Workshop on Dynamics of Non-equilibrium Systems, August 1996, Trieste, Italy, "Morphology of ion-sputtered surfaces: Connections to the KPZ and KS equations."
21. University of Chicago, Department of Physics, Computations in Science Seminar, Chicago, IL, "Morphology of ion-sputtered surfaces: Connections to the KPZ and KS equations."
22. University of Notre Dame, Theory Seminar, November 1996 "Interface motion in porous media."
23. The 4th CTP Workshop on Statistical Physics: Dynamics of Fluctuating Interfaces and Related Phenomena, Seoul National University, January 1996, Seoul, Korea, "Roughening of ion-eroded surfaces."
24. Seoul National University, Center for Theoretical Physics, February 1996, Seoul, Korea, "Universality classes for interfaces in porous media: Pinning, depinning and scaling."
25. Ohio State University, Department of Physics, Condensed Matter Seminar, February 1997, Columbus, OH, "Morphology of ion-sputtered surfaces: Connections to the KPZ and KS equations."
26. Los Alamos National Laboratory, Center for Nonlinear Studies, February 1997, Los Alamos, NM, "Interface motion in porous media: Pinning, depinning and scaling."
27. University of Notre Dame, Department of Chemistry, Physical Chemistry Seminar, March 1997, Notre Dame, IN, "Scaling properties of ion-bombarded surfaces."
28. 213th American Chemical Society Meeting, Division of Physical Chemistry, Kinetics of Growth on Surfaces, April 13, 1997, San Francisco, CA, "Self-assembled quantum dot formation on semiconductor surfaces."
29. Hewlett Packard Laboratories, April 15, 1997, Palo Alto, "Self-assembled quantum dot formation on semiconductor surfaces."

30. DIMACS Workshop on Combinatorial Optimization and Disordered Materials: Recent Progress and Algorithmic Challenges, Rutgers University, May 15 -17, 1997, Camden, NJ, "Invasion percolation and global optimization."
31. Central Institute of Physics, Hungarian Academy of Sciences, June 5, 1997, Budapest, Hungary, "Scaling properties of ion-bombarded surfaces."
32. 'XXVI International School on Physics of Semiconducting Compounds, June 8, 1997, Jaszowiec, Poland, "Epitaxial growth and self-ordering in semiconductors."
33. Gordon Research Conferences on Thin Films & Crystal Growth Mechanisms, Plymouth State College, July 10, 1997, Plymouth, NH, "Self-assembled quantum dot formation on semiconductor surfaces."
34. Materials Research Society Fall Meeting, December 4, 1997, Boston, MA, "Self-assembled dislocation free island formation: an equilibrium theory."
35. University of California at Los Angeles, Department of Mathematics, Applied Mathematics Seminar, March 11, 1998, Los Angeles, CA, "Self-assembled dislocation free island formation: an equilibrium theory."
36. American Physical Society March Meeting, March 16-20, 1995, Los Angeles, CA, "Self-Organized Com-position Modulation During Epitaxial Growth."
37. University of Illinois at Chicago, Department of Physics, Condensed Matter Seminar, April 16, 1998, Chicago, Illinois, "Self-assembled quantum dot formation."
38. Research Institute for Technical Physics and Materials Science, Hungarian Academy of Sciences, June 3, 1998, Budapest, Hungary, "Strained islands on semiconductor surfaces: The growth of self-assembled quantum dots."
39. Eotvos University, Department of Medical Physics, June 5, 1998, Budapest, Hungary, "What keeps sand-castles up: The physics of wet granular matter."
40. CHESS Users Meeting, Workshop on Real-Time Thin-Film Crystal Growth and Pattern Formation on Surfaces, Cornell University, June 17, 1998, Ithica, NY, "Morphology of ion-eroded surfaces."
41. International Conference on Percolation and Disordered Systems: Theory and Applications, Schloss Rauischholzhausen, Justus-Liebig-Universitat, July 14-17, 1998, Giessen, Germany, "Drag force in granular media."
42. Bridging the Time and Length Scales in Modeling Epitaxial Growth, Summer Workshop at HRL Laboratories, August 3 -5, 1998, Malibu, CA, "Self-assembled dislocation free island formation: an equilibrium theory."
43. Los Alamos National Laboratory, Center for Nonlinear Studies, Los Alamos, August 12, 1998, CNLS Colloquium, "Beach Physics: Studies of Wetting and Drag Force in Granular Media."
44. Purdue University, Department of Physics, September 18, 1998, Lafayette, IN, Condensed Matter Seminar, "Self-assembled dislocation free island formation: An equilibrium theory."
45. University of Toledo, Department of Physics Colloquium, September 24, 1998, Toledo, OH, "Self-assembled dislocation free island formation: An equilibrium theory."
46. Babes-Bolyai University, Faculty of Physics, Department of Theoretical Physics, Kolozsvar, December 22, 1998, Theoretical Physics Seminar, "Beach Physics: Studies of Wetting and Drag Force in Granular Media."
47. Lawrence Symposium on Critical Issues in Epitaxy, Arizona State University and Center for Solid State Science, January 6-9, Mesa, AZ, "Equilibrium theory self-assembled dislocation free island formation."

48. State University of New York at Buffalo, Department of Physics, February 18, 1999, Buffalo, NY, Colloquium, "Equilibrium theory self-assembled dislocation free island formation."
49. Argonne Sanday, Argonne National Laboratory, February 6, 1999, Argonne, IL, "Drag force in granular media."
50. University of Cincinnati, Department of Physics, May 5, 1999, Cincinnati, OH, Solid State Seminar, "Equilibrium theory self-assembled dislocation free island formation."
51. Universidad Carlos III de Madrid, Grupo Interdisciplinar de Sistemas Complicados y Departamento de Matematicas, Leganes, June 2, 1999, Madrid, Spain, "Beach Physics: Studies of Wetting and Drag Force in Granular Media."
52. Universidad Autonoma de Madrid, Departamento de Teoria de la Materia Condensada, Cantoblanco, June 4, 1999, Madrid, Spain, "Equilibrium theory self-assembled dislocation free island formation."
53. The First Workshop on Nonequilibrium Dynamic Systems, University of Porto, Department of Physics, June 7-11, 1999, Porto, Portugal, "Drag force in a granular medium."
54. Statphys-Taiwan-1999: Symposium on Equilibrium and Non-equilibrium Phase Transitions, August 9-16, 1999, Taipei and Hualien, Taiwan, "Emergence of scaling in random networks."
55. NEC Research Institute, Sept. 10, 1999, Princeton, NJ, "The topology of the world wide web and other complex networks."
56. Materials Research Society Fall Meeting, Fundamental Mechanisms of Low-Energy-Beam-Modified Surface Growth and Processing, December 2, 1999, Boston, MA, "Morphology of ion sputtered surfaces."
57. Distinguished Scholar Lecture, College of Science, University of Notre Dame, December 7, 1999, Notre Dame, IN, "From the diameter of the World Wide Web to Kevin Bacon."
58. Army Research Office, December 14, 1999, Durham, NC, "Emergence of complex networks: Applications to communication systems and biology."
59. Condensed Matter and Materials Physics Conference (CMMP'99), University of Leicester, December 20, 1999, England, "Computational Physics I: Simulation of Particle and Surface Interactions, "Equilibrium theory of quantum dot formation."
60. Internet Archive Colloquium, Internet Archive, March 8, 2000, San Francisco, CA, "The topology of the World Wide Web."
61. Research Institute for Technical Physics and Material Science, Hungarian Academy of Sciences, May 3, 2000, Budapest, Hungary, "The structure of complex networks: What is common in the world wide web, Hollywood and the cell?."
62. Institute of Physics, Technical University, May 5, 2000, Budapest, Hungary, "The scaling properties of complex networks."
63. Roland Eotvos University, Department of Theoretical Physics, May 10, 2000, Budapest, Hungary, "The scaling properties of complex networks: What is wider, the cell, the World Wide Web, or Hollywood?."
64. Institute for Advanced Study, Collegium Budapest, April 27, 2000, Budapest, Hungary, "From the diameter of the WWW to six degrees of separation: The topology of complex systems."
65. Ninth International World Wide Web Conference, May 15, 2000, Amsterdam, Holland, "19 Degrees of Separation: the Topological Structure of the WWW."
66. Workshop on Nanoscale Modification of Surfaces and Thin Films, May 17, 2000, Bonassola (La Spezia), Italy, "Morphology of ion sputtered surfaces."

67. Workshop on Statistical Mechanics and Graph Theory, ICTP, May 25, 2000, Trieste, Italy, "Emergence of scaling in complex networks."
68. SFI Workshop on Complex Interactive Networks, Santa Fe Institute, August 10, 2000, Santa Fe, NM, "Emergence of Scaling in Complex Networks."
69. Cornell University, Nonlinear Systems/Theoretical and Applied Mechanics, September 13, 2000, Ithaca, NY, "The architecture of complexity: From the diameter of the WWW to the structure of the cell."
70. Columbia University, Department of Sociology, September 18, 2000, New York, NY, "Emergence of Scaling in Complex Networks."
71. Nanotubes & Nanostructures 2000, S. Margherita di Pula, Cagliari, September 25, 2000, Sardinia, Italy, "Self-Organized Island Formation: Homoepitaxy."
72. Nanotubes & Nanostructures 2000, S. Margherita di Pula, Cagliari, September 26, 2000, Sardinia, Italy, "Quantum Dot Formation: Equilibrium Theory."
73. Nanotubes & Nanostructures 2000, S. Margherita di Pula, Cagliari, Sardinia, Italy, September 26, 2000, "Quantum Dot Formation: Kinetic theory."
74. Nanotubes & Nanostructures 2000, S. Margherita di Pula, Cagliari, September 27, 2000, Sardinia, Italy, "Island formation by ion beam sputtering."
75. La Sapienza University, September 29, 2000, Rome, Italy, "Emergence of scaling in complex networks."
76. Boston University, Department of Physics, October 6, 2000, Boston, MA, "Quantum dot formation by ion beam sputtering."
77. Colocation Summit, November 15, 2000, Washington D.C. Keynote Lecture, "The Achilles Heel in the Internet Architecture."
78. University of Notre Dame, Faculty Tea, November 20, 2000, Notre Dame, IN, "Winners and Losers on the Web."
79. University of Notre Dame, Department of Computer Science, December 7, 2000, Notre Dame, IN. Invited talk on "The topology of the world wide web."
80. University of Illinois at Urbana-Champaign, January 29, 2001, Urbana, IL, "Architecture of Complexity: The topology of the cell."
81. Michigan State University, Science at the Edge Lecture, February 16, 2001, East Lansing, MI, "The architecture of complexity: from the WWW to the topology of the cell."
82. University of Minnesota, Department of Chemical Engineering and Materials Science, February 22, 2001, Minneapolis, MN, "The Architecture of Complexity: From the Diameter of the www to the Metabolic Network of the Cell."
83. Dartmouth College, Thayer School of Engineering, February 23, 2001, Hanover, NH, "The Architecture of Complexity: From the Diameter of the WWW to the Topology of the Cell."
84. IBM, T.J. Watson Center, February 26, 2001, "The Architecture of Complexity: From the Diameter of the WWW to the Metabolic Network of the Cell."
85. MECO 26, Middle-European Cooperation in Statistical Physics, March 10, 2001, Prague, Czech Republic, "Emergence of Scaling in Complex Networks."
86. Bar-Ilan Conference on Complex Systems, March 26-30, 2001, Dead Sea, Israel, "Statistical Mechanics of Complex Networks."
87. '85th Statistical Mechanics Conference, Rutgers University, December 17-19, 2001, Camden, NJ, "Statistical Mechanics of Complex Networks."



88. Santa Fe Institute, Business Network meeting on Network Dynamics, March 22-23, 2001, Santa Fe, NM, "Scale-Free Networks."
89. Princeton University, Symposium on the Dynamics in Biological Networks, Lewis-Singer Institute of Integrative Genomics and the Department of Molecular Biology, May 10, 2001, Princeton, NJ, "Topology and Scaling in Biological Networks."
90. University of Notre Dame, Business School, Economics Seminar, May 15, 2001, Notre Dame, IN, "How competition shapes the structure of real networks."
91. 2nd Workshop on Computation of Biochemical Pathways and Genetic Networks, June 21-22, 2001, Villa Bosch, Heidelberg, "The structure of the metabolic network."
92. International Conference on Dynamical Networks In Complex Systems, July 25-27, 2001, Kiel, Germany, "Emergence of scaling in complex networks: from the topology of the WWW to the structure of the cell."
93. Conference on Computational Physics, September 5-8, 2001, Aachen, Germany, "Emergence of Scaling in Complex Networks: From the Topology of the WWW to the structure of the cell."
94. Brains, Genes & Chips: Information Processing in Biological and Man-made Systems, Stockholm, Sweden, September 10-12, 2001, "Genetic networks and the Web."
95. Tokyo University, Department of Physics Colloquium, October 20, 2001, Tokyo, Japan, "Emergence of scaling in complex networks."
96. The 12th International Symposium on Nonlinear Theory and its Applications (NOLTA 2001), October 28 -November 1, 2001, Miyagi, Japan, "The scaling properties of complex networks: From the topology of the WWW to the structure of the cell."
97. Institute for Genomics and Bioinformatics, January 14, 2002, University of California, Irvine, CA, "The network structure of the metabolism."
98. Winter School in Chaotic Communications, January 13-16, 2002, University of California, San Diego, CA, "The architecture of complex networks: From the topology of the Internet to the structure of the network within the cell."
99. International Workshop on Scaling and Phase Transitions in Complex Networks, February 18-22, 2002, Pohang, Korea, "The architecture of complexity."
100. Meeting of the American Physical Society, March 18-22, 2002, Indianapolis, IN, "The architecture of complex systems: emergence of scaling in real networks."
101. International Workshop Concepts for Complex Adaptive Systems, March 20-24, 2002, Bremen, Germany, "Architecture of complexity: The complex networks from the World Wide Web to the cell."
102. Rutgers University, Complexity in Biosystems: Innovative Approaches at the Interface of Experimental Modeling and Computational Simulation, April 8-10, 2002, Piscataway, NJ, "The architecture of complexity: From the topology of the WWW to the cell's protein and metabolic network."
103. Institute for Advanced Studies, April 9, 2002, Princeton, NJ, "Emergence of scaling in complex networks: From the topology of the WWW to the cell's genetic network."
104. Los Alamos National Laboratory, Physics/Theory Colloquium, May 30, 2002, Los Alamos, NM, "The architecture of complexity: From the topology of the WWW to the cell's genetic network."
105. XVIII Sitges Conference on Statistical Mechanics of Complex Networks, June 10-14, 2002, Sitges, Spain, "The Architecture of Complexity: Emergence of scaling in complex networks."

106. International Conference on Complex Systems (ICCS 2002), June 9-14, 2002, Nashua, NH, "The architecture of complexity: From the topology of the WWW to the cell's genetic network."
107. Gordon Research Conference on Macromolecular Organization and Cell Function, Queen's College, August 4-9, 2002, Oxford, United Kingdom, "Characterization of complex cellular networks: From the metabolism to protein interactions."
108. International Centre for Theoretical Physics (ICTP), Summer School on Statistical Physics, Probability Theory and Computational Complexity, August 26-September 4, 2002, Trieste, Italy, "The architecture of complexity: From the topology of the WWW to the cell's genetic network."
109. 7th Granada Seminar, Computational and Statistical Physics, September 2-7, 2002, Granada, Spain, "Emergence of scaling in complex networks."
110. Computations in Science Seminar, James Franck Institute, September 11, 2002, Chicago, IL, "The architecture of complexity: From the topology of the WWW to the cell's genetic network."
111. A Wenner-Gren Foundation Symposium, Cell Signaling -Experimental and Computational Approaches, The Wenner-Gren Center, October 2-5, 2002, Stockholm, Sweden, "The architecture of complexity: Scaling and modularity in cellular networks."
112. American Society of Human Genetics 52nd Annual Meeting, October 18, 2002, Baltimore, MD, "The structure and robustness of the metabolic and protein interaction networks."
113. University of Notre Dame, AME Graduate Student Conference 2002, October 25, 2002, Notre Dame, IN, (Keynote Address) "The architecture of complexity: The network behind the cell and the WWW."
114. 15th Annual National Conference on Biotechnology Ventures, October 28-30, 2002, San Francisco, California, (Keynote Address) "The Architecture of complexity: The network behind the cell and the WWW."
115. Complex Networks: Structure and Dynamics, Boston University, The Center for BioDynamics, December 6, 2002, Boston, MA, "The architecture of complexity: From the topology of the WWW to the cell's genetic network."
116. Dynamic Days Arizona, 22nd Annual International Conference, January 9, 2003, Scottsdale, AZ, "Architecture of Complexity: From the topology of the WWW to the structure of the cell."
117. MIT's Department of Physics, Spring Colloquia, February 13, 2003, Cambridge, MA, "The Architecture of Complexity: from the Topology of the World Wide Web to the Cell's Genetic Network."
118. American Association for the Advancement of Science Annual Meeting, February 18, 2003, Denver, CO, "Mapping Complexity: From the Internet to the Cell."
119. National Institute of General Medical Sciences: NIH Seminar Series on Computation Approaches in Biological Systems, February 27, 2003, Bethesda, MD, "Hierarchical network structure of protein-protein and metabolic interactions."
120. DARPA Biotechnology Speaker Series, February 28, 2003, Arlington, VA, "The architecture of complexity: Structure and modularity in cellular networks."
121. Harvard University, John F. Kennedy School of Government, Cambridge Colloquium on Complexity and Social Networks, March 3, 2003, Cambridge, MA, "The Architecture of Complex Networks."
122. Massachusetts Institute of Technology, MIT Media Laboratory Spring 2003 Colloquium Series, Cambridge, MA, March 4, 2003, "Web Without a Spider: The Emergence of Complex Networks."

123. 35th Annual Meeting of The Union Swiss Society of Experimental Biology, March 19, 2003, Davos, Switzerland, "The architecture of complexity: Structure and modularity in cellular networks."
124. Los Alamos National Laboratory: 23rd Annual Conference on Networks: Structure, Dynamics and Function, May 12, 2003, Santa Fe, "The architecture of complexity: From the topology of the www to the cell's genetic network."
125. Wenner-Gren Foundation (WGS)-Bioinformatics in the post-genome era, June 11, 2003, Stockholm, Sweden, (Plenary Lecture) "Cellular networks: from metabolism to protein interactions."
126. University of Notre Dame, Biocomplexity V: Multiscale Modeling in Biology, August 14, 2003, South Bend, IN. "Understanding and Modeling Complex Cellular Networks."
127. University of Pavia, Frontier Science 2003, A Non-linear World: the Real World, September 8, 2003, Pavia Italy, "Scale-free networks: structures and properties."
128. International Meeting on the Application of Network in Biological: Information and Physical Systems, Universita La Sapienza, September 1, 2003, Rome, Italy
129. Complex Systems across Disciplines, Northwestern University, Chicago, IL, October 24, 2003, "The architecture of complexity: From the topology of the www to the cell's genetic network."
130. 2003 Systems Biology SIG Annual Retreat and Training Program, Warrenton, VA, November 7, 2003, The architecture of complexity: Structure and modularity in cellular networks.
131. 4th Georgia Tech International Conference in Bioinformatics, In silico Biology Networks: From Genomics to Epidemiology, November 14, 2005, Atlanta, GA, (Keynote Address) "The Architecture of Complexity: Structure and Modularity in Cellular Networks."
132. Caltech Biology Division: Keck Symposium, November 17, 2003, Pasadena, CA, "Network Biology: The Cell's Chemical Architecture."
133. University of Notre Dame, Department of Biological Sciences, November 25, 2003, Notre Dame, IN, "The architecture of complexity: Structure and modularity in cellular networks."
134. Johns Hopkins Medical School, Department of Biological Chemistry, The Annual Barton Childs Lecture, Baltimore, MD, January 26, 2004, "Architecture of Complexity – From the WWW to Network Biology."
135. University of Fribourg, The Interdisciplinary Physics Group, Fribourg, Switzerland, January 28, 2004, "Biological Networks and other complex interacting systems."
136. Swiss Federal Institute of Technology: Bio-ADIT 2004, Lusanne, Switzerland, January 29, 2004, "The Architecture of Complexity: From the Internet to Metabolic Networks" (keynote).
137. National Research Council Canada (NRCC), Biotechnology Research Institute, Montreal, Quebec, Canada, March 24, 2004, "The structure of complex biological networks: From metabolic superhighways to protein interaction networks."
138. American Physical Society, March Meeting, Montreal, Quebec, Canada, March 22, 2004, "The Nature of Networks: Structure and Dynamics", (invited).
139. Duke University: Interdisciplinary Studies, Durham, NC, April 2, 2004, "The Architecture of Complexity: From the Structure of the WWW to the Topology of the Metabolic Network."
140. Ecole Normale Superieure, Departement de Physique, Paris, France, April 5, 2004, "The Architecture of Complexity: From the Structure of the WWW to the Topology of the Metabolic Network."
141. UNESCO, Paris, France, April 6, 2004, "The Architecture of Complexity."

142. Eotvos Lorand University, Workshop on Statistical Mechanics, Budapest, Hungary, April 7, 2004, "The dynamics of complex networks."
143. Sapientia University, Csikszereda, Romania, April 8, 2004, "The new science of networks."
144. Princeton University, Department of Chemistry, Princeton, NJ, April 13, 2004, "The structure of metabolic networks."
145. Princeton University, Department of Physical Biology, Princeton, NJ, April 14, 2004, "Origin and abundance of motifs and subgraphs in cellular networks."
146. Communications in the 21st Century: The Global and the Local in Mobile Communication, Budapest, Hungary, June 11, 2004.
147. Collegium Budapest Institute for Advanced Study, EXYSTENCE; Thematic Institute on Complex Systems 'Networks & Risks', Budapest, Hungary, June 18, 2004, "The architecture of complexity: From the topology of the WWW to the cell's genetic network."
148. '9th Meeting of the European Hematology Association, Geneva, Switzerland, June 12, 2004, "Systems Biology: The cell's network architecture, and what can we learn from it."
149. STATPHYS 22: 22nd International Conference on Statistical Physics, Kolkata, India, July 5, 2004, "Statistical Mechanics of Complex Networks: From the topology of the www to the cell's genetic network" (plenary speaker).
150. Tusvanyos Summer University in Tusnadfurdo, Hungary, July 23, 2004.
151. Science of Complex Networks: from Biology to the Internet (CNET2004), Aveiro, Portugal, August 29, 2004, "Statistical Mechanics of Complex Networks: From the topology of the www to the cell's genetic network."
152. XVIII Santander Telecommunications Conference AETIC (Asociacin de empresas de Electronica, Telecomunicaciones y Tecnologas de la Informacin de Espaa), Santander, Spain, August 31, 2004, "The network of telecommunications subject of a new science" (Plenary).
153. The Consortium for Post Genome Science: Genomes to Systems 2004, Manchester, England, September 2, 2004, "The architecture of complexity: From protein interaction networks to metabolic superhighways" (Plenary 3 Speaker).
154. '16th Annual Meeting of Academia Europaea: Europe in Change, Helsinki, Finland, September 4, 2004, "The Architecture of Complexity: From the topology of the WWW to the cell's genetic networks" (plenary).
155. University of Michigan, Metabolemics and Obesity, Ann Arbor, MI, November 4, 2004, "Metabolic Networks."
156. University of Chile, Department of Computer Science, Santiago, Chile, December 20, 2004, "The Architecture of Complexity: from Web based communication to the cell."
157. American Academy for the Advancement of Science's Annual Meeting, Washington, DC, February 20, 2005, "The Architecture of Complexity: From the WWW to the Cell."
158. Dana-Farber Cancer Institute, Center for Cancer Systems Biology, Boston, MA, March 24, 2005, "Network Biology: From protein interactions to the metabolic network."
159. Indiana University-Bloomington, Department of Central Eurasian Studies, International Symposium: Creativity, Mind, and Brain in Hungarian Scholarship Past and Present, Bloomington, IN, April 2, 2005, "The architecture of complexity: From the cell to the World Wide Web and from Budapest to Indiana." 159. Keystone Symposium: Systems Biology, Keystone, CO, April 9, 2005, "Network Biology: From the Metabolism to Protein Interactions."

160. The Israel Academy of Sciences and Humanities, Albert Einstein Legacy -A One Hundred Years Perspective, Jerusalem, Israel, April 13, 2005, "The Architecture of Complexity: Bose-Einstein Condensation in Networks" (Session 6: the Modernity of Einsein's Ideas).
161. Bar-Ilan University, Bar-Ilan, Israel, April 14, 2005, "The architecture of complexity: the structure and dynamics of complex networks."
162. NATO Advanced Study Institute, Department of Physics, Institute for Energy Technology (IFE), Dynamics of Complex Interconnected Systems: Networks and Bioprocesses, Geilo, Norway, April 18, 2005, "Error and attack tolerance of complex electronic, social and biological networks."
163. International Centre for Genetic Engineering and Biotechnology (ICGEB), Trieste, Italy, May 20, 2005, "Network Biology: From protein interactions to antibiotics."
164. The Abdus Salam International Centre for Theoretical Physics (ICTP): Workshop on Structure and Function of Complex Networks, Trieste, Italy, May 23, 2005, "From the cell to the web & Workshop Lecture: Human Dynamics (Public Lecture)."
165. The 14th Annual Conference of the North American Association for Computational Social and Organizational Science (NAACSOS), University of Notre Dame, Notre Dame, IN, June 27, 2005, "The Architecture of Complexity: The structure and the dynamics of networks, from the web to the cell (Keynote)."
166. 2005 FEBS Congress and IUBMB Conference, Budapest, Hungary, July, 6, 2005, "Network Biology: From the metabolism to protein interactions."
167. Conference on Evolutionary Network Analysis, Andrassy University, Budapest, Hungary, July 7, 2005, "The Architecture of Complexity: from Web to the Economy."
168. Les Houches 2005: Mathematical Statistical Physics, French Alps, July 20, 2005, "The topology of complex networks: From scale-free to hierarchical architectures."
169. Program for NWICG Workshop, Notre Dame, IN, August 17, 2005, "Scale-Free Networks."
170. Knowledge Discovery and Data Mining 2005 (KDD), Chicago, IL, August 24, 2005, "The architecture of complexity: The structure and the dynamics of networks, from the web to the cell."
171. 2nd US-EU Workshop: Systems level understanding of DNA damage responses, Session I 4, Stowe, Vermont, September 30-October 4, 2005, (keynote addresses), "Network Biology: Understanding the structure of metabolic and protein interaction networks."
172. Mindentudás Egyeteme, Budapest, Hungary, October 10, 2005, "Behalozva" broadcasted on National TV.
173. Internet Hungary Conference, October 11, 2005, Tihany, Hungary, "Behalozva" (Plenary Speaker).
174. KDD Conference, Communication Patterns in Social Networks, McLean, VA, November 1-2, 2005, "Understanding Human Communication Networks."
175. 2005 Boston Angiogenesis Meeting, Boston, MA, November 18, 2005, "Network Biology: Understanding the Cell's Network Architecture."
176. Annual Biostatistics Lecture, Harvard University, Dana Farber Cancer Institute, November 28, 2005, "Network Biology: from protein interactions to diseases."
177. 5th Annual ORFeome Meeting: ORFeomes and Systems, Harvard University, November 30, 2005, "Network Biology."
178. Fireside Chat Lecture, Harvard University, December 14, 2005, Cambridge, MA "From Linked to Network Biology"
179. 94th Statistical Mechanics Meeting, Piscataway, NJ, December 20, 2005, "The Nature of Time in Complex Networks."

180. Speak at the Swiss Consulate w/David Lazer, Boston, MA, January 30, 2006, "The architecture of complexity."
181. Keystone Symposium on Signaling Networks, Vancouver, British Columbia, February 2-4, 2006, "Protein Interactions Networks."
182. Winter School Genomics, Cuernavaca, Mexico, February 8-12, 2006, "Protein Networks."
183. Physical Chemistry Seminar, Cambridge, MA, March 6, 2006 (Invited Seminar), "Network Biology: From the metabolism to protein interaction networks."
184. 8th Annual Internet Investment Conference, San Francisco, CA, March 8, 2006, (Plenary Speaker) "Complex Networks: from the Internet to the Cell."
185. American Physical Society's March Meeting, Baltimore, MD, March 13, 2006, Session F50: Emerging Emergent Phenomena Abstract: F50.00003: "Statistical Mechanics of Complex Networks: From the Internet to Cell Biology."
186. SPRING 2006 UMASS Amherst Operations Research/Management Science Seminar Series, Eugene M. Isenberg School of Management University of Massachusetts, Amherst, MA, March 17, 2006, "The architecture of real networks: from the Web to social networks."
187. Yale CBB/YCMI Lecture Series, New Haven, CT, March 24, 2006 (Yale Program for Computational Biology and Bioinformatics and Yale Center for Medical Informatics), "Network Biology: from Metabolic Networks to Protein Interactions."
188. Systems Biology Summit, Richmond, VA, March 31, 2006, (Plenary Speaker), "Network Biology: from protein interactions to human diseases."
189. National Cancer Institute's Integrative Cancer Biology Program: ICBP Meeting, April 30-May 2, 2006, Nashville, TN, "The Human Disease Network."
190. International Conference on Network Science (NetSci06), May 24, 2006, Bloomington, IN, "From Human Disease to Human Dynamics."
191. 2006 Annual SMBE Meeting: Genomes, Evolution, and Bioinformatics (GEB-2006), May 25, 2006, Tempe, AZ, (Keynote) "Network Biology: From protein interactions to human Diseases."
192. Defense Advanced Research Projects Agency (DARPA), Microsystems Technology Office (MTO), Complex Systems Architectures Workshop, June 6-7, 2006, Arlington, VA, "Networked Complex Systems Architectures."
193. International Conference on Complex Systems 2006, June 25-30, 2006, Boston, MA, "The Architecture of Complexity: Networks, biology, and dynamics."
194. Society for Industrial and Applied Mathematics: SIAM Annual Meeting, July 10-14, 2006, Boston, MA, (Invited Plenary) Complex Networks: From the Internet to the Cell.
195. NIH Wednesday Afternoon Lectures, September 20, 2006, Bethesda, MD, "Diseases Network Biology: From Scale-Free Networks to Human."
196. 1st International GEN-AU Conference "Genomics for Health", October 15-18, 2006, Vienna, Austria, (Keynote) "Network Biology: From Scale-Free Networks to Human Diseases."
197. 2006 Biomedical Engineering Society Fall Meeting (BMES), October 12, 2006, Chicago, IL, "Network Biology: From protein interactions to human diseases."
198. Harvard University, Department of Physics, October 23, 2006, Boston, MA, "Complex Networks: From the Web to the Cell."
199. Harvard-MIT Division of Health Sciences and Technology (HST), October 19, 2006, Boston, MA, "Network Biology: From Scale-Free Networks to Human Diseases."

200. 2006 Annual Conference for the American Society for Information Science and Technology (ASIS&T), Austin, TX, November 5, 2006, (Plenary) "Complex Networks: From the Web to the Cell."
201. 5th Annual Online Publishers Association Summit, November 2, 2006, Phoenix, AZ, (Keynote) "Linked: The Theory of Networks."
202. PASI 2006: Disorder & Complexity, Mar del Playa, Argentina, December 15 & 16, 2006, "From the World Wide Web to the Cell's Internal Organization."
203. Evolving Life, Life Evolving (ELLE), Namur, Belgium, December 20, 2006, "Network Biology: From Scale-Free Networks to Human Diseases."
204. NHLBI Systems Medicine Workshop: A systems biology meeting involving complex networks, January 30-January 31, 2007, Bethesda, MA, "Biological and disease networks."
205. Pennsylvania State University, Huck Institutes of the Life Sciences, January 16, 2007, State College, PA, "Network Biology: From Scale-Free Networks to Human Diseases."
206. Pennsylvania State University, College of Information Sciences and Technology, January 17, 2007, State College, PA, "From the Web to Human Behavior: When will you reply to my email?."
207. NHLBI Systems Medicine Workshop, American Institutes for Research, Bethesda, MA, January 30, 2007, "Biological and disease networks."
208. Colloquium, Northwestern University, Evanston, IL, February 23, 2007, "Complex networks: From the web to human diseases" (Invited).
209. National Cancer Institute, CViT Site Visit at Massachusetts General Hospital, Charlestown, MA, April 10, 2007, "Cancer network presentation focused on glioma/brain tumors and non-small cell lung cancer."
210. Interactome Mapping Project For Human and Model Organisms, The Banbury Center, Cold Spring Harbor, NY, April 24, 2007, "Human diseaseome: Using protein interaction to explore human diseases."
211. 2007 Graduate Alumni Reunion, Boston University, Boston, MA, May 5, 2007, "Complex networks: From the web to human diseases."
212. Ad Astra, Workshop on Quantitative Biology, International Center for Biodynamics, Bucharest, Romania, May 18, 2007, "From Cellular Networks to Human Diseases."
213. NetSci 2007: International Workshop and Conference on Network Science, New York Hall of Science, New York City, May 21, 2007, "Complex networks: From the web to human diseases."
214. International Workshop on Complex Systems and Networks, Sovata, Romania, July 9-31, 2007, "Time and Networks."
215. Mutamorphosis: Challenging Arts and Sciences, Municipal Library, Prague, Czech Republic, November 8-10, 2007, "The Architecture of Complexity."
216. KAIST Business School, Seoul, Korea, November 29-30, 2007, "Introduction to Complex Networks" and "Application of Network Theory."
217. Harbinger Technologies Group, Fort Belvoir, VA, December 13, 2007. Presentation on "Linked."
218. APS March Meeting, New Orleans, LA, March 12, 2008, "From network dynamics to human activity and mobility patterns".
219. Newborn Epidemiology & Clinical Research Seminar, Beth Israel Deaconess Medical Center, Boston, MA, April 17, 2008.

220. MERISH: Meeting on Methodology for Empirical Research on Social Interactions, Social Networks, and Health, Harvard University, Boston, MA, May 2-3, 2008, "Human Dynamics: From Priorities to Human Travel Patterns".
221. Brookhaven National Laboratory, Upton, NY, June 9, 2008, "Network Science: from the web to human disease" (Distinguished Lecture Series).
222. NetSci 2008: International Conference and Workshop in Network Science, Norwich, England, June 27, 2008, "Network science applications to global communications".
223. How to Use Network and Systems Biology Approaches to Study Cardiovascular Disease", Retreat hosted by Drs. Joseph Loscalzo and Ringlih Liao of Brigham and Women's Hospital, Boston, MA, August 2, 2008, (keynote).
224. NORDITA Workshop, Stockholm, Sweden, August 25, 2008, "Human mobility patterns".
225. 5<sup>th</sup> European Conference on Complex Systems (JERUCCS08), Jerusalem, Israel, September 16, 2008, "Human mobility patterns" (plenary).
226. Carmel Business Summit 2008, Haifa, Israel, September 17, 2008, "Network Science: Understanding the hidden structure of complex systems" (plenary).
227. 5<sup>th</sup> European Conference on Complex Systems (JERUCCS08), Satellite: Dynamics on and of complex networks – II, September 18, 2008, "From complex networks to human dynamics".
228. The 1st Annual Global Empowerment Meeting, Harvard University, Cambridge, MA, September 22, 2008, "Letting massive data tell their story...".
229. LabLinks: Systems Biology Symposia, Boston University Photonics Center, October 3, 2008, "Network medicine: From cellular networks to human diseases".
230. University of Houston, Biological Networks Seminar (Tennenco Lectures), Department of Physics Houston, October 10, 2008, Houston, Texas, "From the Web to Human Diseases".
231. 3rd USMA Network Science Workshop, US Military Academy West Point, October 16, 2008, New York, NY, "Network Science".
232. Epiwork 2008: Facing the Challenge of Infectious Disease, ISI Foundation, October 13-17, 2008, Turin, Italy, "Spreading Mobile Phone Viruses".
233. Distinguished Lecture Series, Electrical & Computer Engineering Department, Northeastern University, October 23, 2008, "Complex Networks: The architecture of complexity".
234. WSRI Scientific Council Workshop, Web Science Research Initiative, MIT, Cambridge, MA, November 11, 2008, led by Dr. Jennifer Chayes a panel discussion on Computational and Mathematical Priority Issues in Web Science.
235. "NAKFI: Complex Systems", National Academy of Sciences, November 12-13, 2008, Irvine, CA, (keynote).
236. 58th Annual Meeting: The American Society of Human Genetics, November 14, 2008, Philadelphia, PA, "Network medicine: from cellular networks to the human disease" (Distinguished Speakers' Symposium).
237. Special Lecture, Department of Physics, Kyoto University, November 15, 2008, Kyoto, Japan, "Complex Networks: From the WWW to the cell".
238. NEC C&C Foundation Awards, NEC C&C Foundation, November 17-22, 2008, Tokyo, Japan, "The Architecture of Complexity: From the Topology of the WWW to the Structure of the Cell" (acceptance speech).
239. NEC Central Research Laboratories Lectures, November 21, 2008, Tokyo, Japan, "The Architecture of Complexity: From the Topology of the WWW to the Structure of the Cell".



240. WSRI Scientific Council Workshop, Web Science Research Initiative, MIT, Cambridge, MA, November 11, 2008.
241. French American Innovation Day 2008 (FAID), Boston, MA, December 3, 2008, "Network Medicine: From the human disease to comorbidity patterns".
242. Colloquium, Department of Biology, Northeastern University, Boston, MA, December 8, 2008.
243. 100th Statistical Mechanics Conference and DIMACS Workshop, Rutgers University, Piscataway, NJ, December 16, 2008, "From Networks to Human Mobility Patterns".
244. Complex 2009, The First International Conference on Complex Sciences: Theory and Applications, Shanghai, China, February 23-25, 2009, "The architecture of complexity: From the topology of the WWW to the structure of the cell" (keynote).
245. THIC: Tokyo Tech - Hitotsubashi Interdisciplinary Conference & APFA7: Applications of Physics in Financial Analysis, Hitotsubashi, Chiyoda-ku, Tokyo, March 1-5, 2009, "The architecture of complexity: from networks to international trade" (plenary).
246. RIETI Policy Symposium Program, Hitotsubashi, Chiyoda-ku, Tokyo, March 5, 2009, "Frontier of Network Science: From the topology of the WWW to the business web" (keynote).
247. Fidelity Center for Applied Technology (FCAT), Boston, MA, March 25, 2009, "Linked: The Science of Networks" (keynote).
248. FET 2009 Conference: Science Beyond Fiction, Prague, Czech Republic, April 21-23, 2009, "From Networks to Human Mobility Patterns" (keynote).
249. National Academy of Sciences Awards Ceremony as a recipient of the Cozzarelli Prize, Washington, DC, April 26, 2009, "The implications of human metabolic network topology for disease comorbidity" (invited).
250. Institute for Mathematics and Its Applications, University of Minnesota, April 28, 2009, "Network Science: From the web to human disease"(invited).
251. The Networked Self: Identity Community Culture on Social Network Sites, University of Illinois-Chicago, Department of Communications, May 20, 2009 (keynote).
252. 32nd Annual ACM SIGIR Conference, Boston, MA, July 21, 2009, "From Networks to Human Behavior"(keynote).

### **Contributed talks and posters**

1. Middle-European Cooperation, Balatonfured, Hungary, 1990, "Tracing a diffusion-limited aggregation" (poster).
2. Middle-European Cooperation, Duisburg, Germany, 1991, "Direct measurement of the  $h^{(\circ)}$  spectrum for multi-affine functions" (poster).
3. Surface disordering: Growth, roughening and phase transitions, Les Houches Workshop 1992, "The 3d Toom model and anisotropic KPZ" (talk).
4. STATPHYS-18, Berlin, 1992, "Nonequilibrium fluctuations of the Toom interface" (talk).
5. Materials Research Society Fall Meeting, Boston, 1992, "Dynamic scaling of coupled nonequilibrium fluctuations"(talk).
6. Fractals in Natural Sciences, Budapest, 1993, "Surfactant-mediated surface growth: Nonequilibrium theory" (poster).

7. Materials Research Society Fall Meeting, Boston, 1993, "Roughening of interfaces with partially reflective boundaries" (poster).
8. Materials Research Society Fall Meeting, Boston, 1993, "Layer-by-layer growth: A nonequilibrium approach" (talk).
9. American Physical Society March Meeting, Pittsburgh, 1994, "New exponent characterizing the effect of evaporation on imbibition experiments" (talk).
10. American Physical Society March Meeting, Pittsburgh, 1994, "Deposition, diffusion, and aggregation: A model for growing two-dimensional nanostructures" (talk).
11. American Physical Society March Meeting, Pittsburgh, 1994, "Surfactant-mediated interface growth: Nonequilibrium approach" (talk).
12. Scale Invariance, Interfaces and Non-Equilibrium Dynamics, NATO Adv. Study Inst., (Newton Institute, Cambridge [UK], 1994), "Avalanches in the lung" (poster).
13. Scale Invariance, Interfaces and Non-Equilibrium Dynamics, NATO Adv. Study Inst., (Newton Institute, Cambridge [UK], 1994), "Universality classes for interfaces in porous media" (poster).
14. Materials Research Society Fall Meeting, Boston, 1994, "Universality classes for interface growth with quenched disorder" (poster).
15. Materials Research Society Fall Meeting, Boston, 1994, "Dynamic scaling of ion-sputtered surfaces" (poster, presented by R. Cuerno).
16. Materials Research Society Fall Meeting, Boston, 1994, "Elastic string in an anisotropic random medium near the depinning transition" (poster, presented by H.A. Makse).
17. Materials Research Society Fall Meeting, Boston, 1994, "A new exponent characterizing the effect of evaporation on imbibition experiments" (poster, presented by L.A.N. Amaral).
18. Materials Research Society Fall Meeting, Boston, 1995, "Scaling properties of driven interfaces above the depinning transition" (contributed talk, presented by L.A.N. Amaral).
19. American Physical Society March Meeting, St. Luis, 1996, "Directed Surfaces in Disordered Media" (talk).
20. American Physical Society March Meeting, St. Luis, 1996, "The ballistic random walker" (talk, presented by M.A. Munoz).
21. Dynamics of Crystal Surfaces and Interfaces, Traverse City, Michigan, "Roughening of ion-sputtered surfaces", (poster).
22. Dynamics of Crystal Surfaces and Interfaces, Traverse City, Michigan, 1996, "Sputtering of rough surfaces: the effect of roughness on the yield", (poster, presented by M. Makeev).
23. Midwest Solid State Theory Symposium, 1996, University of Illinois at Urbana Champaign, Illinois, "Ion-bombardment induced surface diffusion", (poster, presented by M. Makeev).
24. The 4th CTP Workshop on Statistical Physics: Dynamics of Fluctuating Interfaces and Related Phenomena, Seoul National University, Seoul, Korea, January 1996, "Numerical simulation of ripple formation during ion-beam sputtering" (poster, presented by C.S. Lee).
25. American Physical Society March Meeting, Kansas City, 1997, "Self-assembled quantum dot formation on semiconductor surfaces" (talk).
26. American Physical Society March Meeting, Kansas City, 1997, "Effects of controlled wetting on the repose angle in granular media." (talk, presented by P. Schiffer).
27. Gordon Research Conferences on Thin Films & Crystal Growth Mechanisms, Plymouth State College, Plymouth, NH, July 7, 1997, "Self-assembled Quantum Dot Formation" (poster, presented by I. Daruka).

28. American Physical Society March Meeting, Los Angeles, California, 1995 March 16-20, "Equilibrium Phase Diagrams for Dislocation Free Self-Assembled Quantum Dots", (poster, presented by I. Daruka).
29. American Physical Society March Meeting, Los Angeles, California, 1995 March 16-20, "Drag Force In Granular Media: Analog to Viscosity?" (contributed talk, presented by P. Schiffer).
30. International Conference on Percolation and Disordered Systems: Theory and Applications, Schloss Rauischholzhausen, Justus-Liebig-Universität Giessen, Germany, July 14-17, 1998, "The angle of repose in wet and dry granular media" (poster).
31. XXth IUPAP International Conference on Statistical Physics, Paris, France, July 20-24, "Drag force in granular media" (talk).
32. XXth IUPAP International Conference on Statistical Physics, Paris, France, 1998 July 20-24, "Maximum angle of Stability in Wet and Dry Spherical Granular Media", (poster, presented by R. Albert).
33. XXth IUPAP International Conference on Statistical Physics, Paris, France, 1998 July 20-24, "Interface Motion in Porous Media: Determination of Universality Classes from Experimental Data" (poster, *presented by R. Albert*).
34. Nato ASI on Dynamics: Models and Kinetic Methods for Nonequilibrium Many-Body Systems, Leiden, The Netherlands, 1998 July 27-August 7, "Maximum angle of Stability in Wet and Dry Spherical Granular Media", (poster, presented by R. Albert).
35. Nato ASI on Dynamics: Models and Kinetic Methods for Nonequilibrium Many-Body Systems, Leiden, The Netherlands, 1998 July 27-August 7, "Slow Drag in a Granular Medium", (poster, presented by R. *Albert*).
36. Materials Research Society Fall Meeting, Boston, 1998, "Shape Transition in growth of strained islands" (*contributed talk, presented by I. Daruka*).
37. Materials Research Society Fall Meeting, Boston, 1998, "Equilibrium phase diagrams for dislocation free self-assembled quantum dots" (poster, presented by I. Daruka).
38. Materials Research Society Fall Meeting, Boston, 1998, "Ratchet effect in surface electromigration: smoothing surfaces by an AC field" (contributed talk).
39. American Physical Society Centennial Meeting, Atlanta, GA, March 25, 1999, "Ratchet effect in vortex dynamics: Reducing vortex densities in superconductors" (contributed talk).
40. American Physical Society Centennial Meeting, Atlanta, GA, March 25, 1999, "AC field induced currents in disordered media" (poster, presented by M. Makeev).
41. American Physical Society Centennial Meeting, Atlanta, GA, March 22, 1999, "Calculation of the Drag Force in a Granular Medium" (contributed talk, presented by R. Albert).
42. American Physical Society Centennial Meeting, Atlanta, GA, March 24, 1999, "Driven Interfaces in Disordered Media: Determination of Universality Classes from Experimental Data" (contributed talk, *presented by R. Albert*).
43. DOE: 2003 Genomes to Life Workshop, Arlington, VA, February 12, 2003, "Hierarchical Organization of Modularity in Metabolic Networks" (poster).

### **Conferences Organized and Chaired:**

1. American Physical Society March Meeting, Kansas City, 1997, Session: "M25. DMP: Roughening of Single Crystal Surfaces", Session Chair.

2. Dynamics of Crystal Surfaces and Interfaces, Traverse City, Michigan, August 4-8, 1996, Session: "Growth: Anisotropy and/or strain effects", Session Chair.
3. Workshop on Dynamics of Non-equilibrium Systems, Trieste, Italy, August 1996, Session Chair.
4. Co-organizer of the Focused Session "Nanometer Scale Morphology of Surfaces and Interfaces" at the American Physical Society March Meeting, 1997, Division of Materials Physics.
5. Materials Research Society Fall Meeting, Boston, MA, December 1-5, 1997, "Strain effects on interface stability", Session Chair.
6. Co-organizer of the "Epitaxial Growth: Principles and Applications" session at the Materials Research Society Spring Meeting, April, 1999, San Francisco.
7. American Physical Society March Meeting, Los Angeles, California, 1995 March 16-20, 21: DMP: "Nanometer Scale Morphology of Surfaces and Interfaces II: Strain Induced Islanding and Roughening" (DMP Focused Session), Session Chair.
8. American Physical Society March Meeting, Los Angeles, California, 1995 March 16-20, S4: DCMP: "Self Organized Composition Modulation During Epitaxial Growth" (DMP Focused Session), Session Chair.
9. American Physical Society Centennial Meeting, Atlanta, GA, March 22, DCMP: "Granular Materials", Session Chair.
10. The First Workshop on Nonequilibrium Dynamic Systems, University of Porto, Department of Physics, "Advances in Granular Media", June 7-11, 1999, Porto, Portugal, Discussion Leader.
11. Co-organizer of the "Morphological and compositional evolution of heteroepitaxial thin films" Symposia at the Materials Research Society Spring Meeting, April, 2000, San Francisco.
12. Materials Research Society Fall Meeting, Fundamental Mechanisms of Low-Energy-Beam-Modified Surface Growth and Processing, Boston, MA, November 29, 1999, "Beam-induced surface growth and modification", Session Chair.
13. The 2nd International Conference on Frontier Science 2003, Program Committee Member, Pavia, Italy, September 8, 2003.
14. 2004 American Physics Society March Meeting, Co-organizer of the Networks section 12.9.6. "The Nature of Networks: Structure and Dynamics" (G SNP), Montreal, Quebec, Canada, March 22, 2004.
15. Bio-Inspired Approaches to Advanced Information Technology (BIOADIT2), Member of the Steering Committee, Osaka, Japan, January 26-27, 2006.
16. 2nd European Conference for Complex Systems (ECCS '06), Off-site member of the Programme Committee, Oxford, England, September 25-29, 2006.
17. International Workshop and Conference on Network Science 2006 (NetSci 2006), Indiana University, Bloomington, IN, May 16-25, 2006.
18. International Workshop and Conference on Network Science 2007 (NetSci 2007), New York Hall of Science, Queens, NY, May 20-25, 2007,
19. International Workshop on Complex Systems and Network, Transylvanian Summer School Series, July 15-20, 2007, Sovata, Romania.

#### **Served as Reviewer:**

1. Journals: Nature, Science, Proceedings of the Natural Academy of Sciences, Nature Genetics, Nature Biotechnology, Nature Medicine, Physical Review Letters, Physical Review B, Physical Review E, Europhysics Letters, Journal of Physics A, Physica A, Physics Letters A, Journal of Vacuum Science

and Technology, Surface Science, Journal of Statistical Physics, Optics Letters, Applied Physics Letters, The Journal of Physical Chemistry, Metallurgical and Materials Transactions.

2. Organizations: National Science Foundation, Research Corporation, Petroleum Research Fund, Department of Energy, European Commission: New and Emerging Science and Technologies (NEST) and member of the Scientific Counsel of the Web Science Research Initiative (WSRI) .