

Background “classic” literature on complexity science

The following is a collection of papers regarded as "classic" literature in Complex Systems Science. This list has been growing over the past few years and was formalized by Dan Rockmore for the 2010 Complex Systems Summer School.

Science and complexity by Warren Weaver

Rosenblueth, A., and N. Wiener. 1945. The Role of Models in Science. *Philosophy of Science* 12 (4):316-321.

Shannon, C.E. 1948. A Mathematical Theory of Communication. *Bell System Technical Journal* 27:379-423 623-656.

Turing, A.M. 1952. The Chemical Basis of Morphogenesis. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences* 237 (641):37-72.

Minsky, M. 1961. Steps Toward Artificial Intelligence. *Proceedings of the Institute of Radio Engineers* 49 (1):8-30.

Landauer, R. 1961. Irreversibility and Heat Generation in the Computing Process. *IBM Journal of Research and Development* 5:183-191.

Arrow, K.J. 1962. The Economic Implications of Learning by Doing. *Review of Economic Studies* 80:155-173.

Raup, D.M. 1966. Geometric Analysis of Shell Coiling; General Problems. *Journal of Paleontology* 40 (5):1178-1190.

Holland, J.H., and J.S. Reitman. 1977. Cognitive Systems Based on Adaptive Algorithms. *SIGART Newsletter* (63):49.

Gould, S.J., and N. Eldredge. 1977. Punctuated Equilibria: the Tempo and Mode of Evolution Reconsidered. *Paleobiology* 3 (2):115-151.

Langton, C.G. 1986. Studying Artificial Life with Cellular Automata. *Physica D: Nonlinear Phenomena* 22 (1-3):120-149.

M. E. J. Newman. 2005. "Power laws, Pareto distributions and Zipf's law." *Contemporary Physics* 46, 323-351.

Aaron Clauset, Cosma Rohilla Shalizi, M. E. J. Newman. 2009. "Power-law distributions in empirical data." *SIAM Review* 51, 661-703.