

# Histophysics: Integrating History with Physics

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Histophysics is a new discipline on the study of physics in human history. It is an example showing the successful merging of humanity/social science with natural science.

That human history can be studied by physics is not at all surprising. In the Greek time, more than two thousand years ago, knowledge is a whole. The division of knowledge into natural and social sciences was a relatively new phenomenon, appearing only a few hundred years ago. This division is more a convenience and is kind of artificial. After all, natural science is about the study of nature, which of course includes *all* material systems. On the other hand, social science is about the study of humans; in particular, history is about what happened to humans. And humans are *Homo sapiens*, a material system. Consequently, social science/history is part of natural science, in particular, physics.

In fact, sociology was called “social physics” when it was first proposed by Comte. History, since the nineteenth century, has been treated as a science intermittently through the efforts of Condorcet, Comte, Buckle, Taine, Adams, and others. The reason that history did not become a science was due more to the inadequate scientific training of the practicing historians, and less to the stochastic and irreproducible nature of historical processes [1].

History is the most important discipline of study. A historical process, expressed in the physics language, is the time development of a subset of or the whole system of *Homo sapiens* that happened during a time period of interest in the past. History is therefore the study of the past dynamics of this system. Historical processes are stochastic, resulting from a combination of contingency and necessity. In this presentation, the nature of history is presented. Two unsuspected *quantitative* laws and a prediction about the Chinese history are given. Applications of active walks [2] to history and other examples of histophysics are summarized. The “differences” between history and the natural sciences erroneously expressed in some history textbooks are clarified. The future of history, as a discipline in the universities, is discussed; recommendations are provided.

1. Lui Lam, “Histophysics: A New Discipline,” *Modern Physics Letters B* **16**, 1163-1176 (2002). [Also appeared in *Frontiers of Science: In Celebration of the 80th Birthday of C.N. Yang*, edited by H.T. Nieh (World Scientific, Singapore, 2003), pp 456-471.]
2. Lui Lam, “Active Walks: The First Twelve Years,” *International Journal of Bifurcation and Chaos* **15**, 2317-2348 (2005); **16**, 239-268 (2006).

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**Lui Lam** obtained his B.Sc. from the University of Hong Kong, M.Sc. from the University of British Columbia, and Ph.D. from Columbia University. Prof. Lam invented bowlics (1982), one of three existing types of liquid crystals in the world; active walks (1992), a new paradigm in complex systems; and a new discipline called histophysics (2002). Lam published 11 books and over 150 scientific papers. He is the founder of the International Liquid Crystal Society (1990), the founder and editor-in-chief of the Springer book series *Partially Ordered Systems*, and the cofounder of the Chinese Liquid Crystal Society (1980). His current research is in histophysics, complex systems and science matters.