# 新文科，文理交融，创新

林磊

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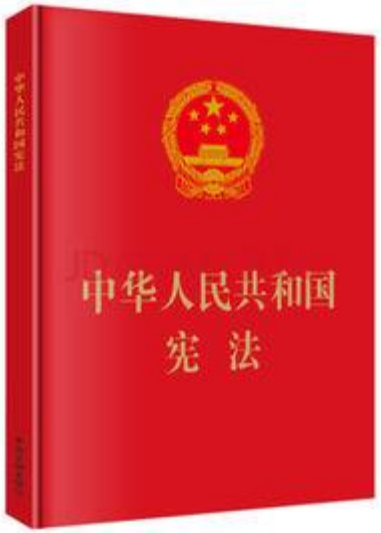
# 社会主义核心价值观


国家层面的价值目标：**富强、民主、文明、和谐**

社会层面的价值取向：**自由、平等、公正、法治**

个人层面的价值准则：**爱国、敬业、诚信、友善**

# 中国特色




2018

**第一章　总 纲**

第一条

… 社会主义制度是中华人民共和国的根本制度。中国共产党领导是中国特色社会主义最本质的特征。…

# 中国梦


1. 万国来朝
2. 经济大国
3. 文化受敬

- 唐朝：唐诗
- 宋朝：宋词
- 新中国：新文科

# 新文科

# 新 文 科

- 2018　教育部高等教育司：高等教育创新势在必行，
  要全面推进“新工科、新医科、新农科、新文科”等建设

- 2019.07.23　一批大学校长书记座谈（《光明日报》19.07.24）

  - 提出：大学要搞新文科，搞文理交融
  - 目的：让文科毕业生能更好地为社会服务
  - 办法：大学要清除一些行政壁垒，让文科生学点新科技
  - 目标：为大学生带来一场＂学习革命＂

- 2019.10.28　中国科学技术大学召开新文科建设研讨会

# 文理交融

# 文理分隔的由来

泰勒斯 (Thales, 2600年前)

亚里士多德 (Aristotle, 2400年前)

达·芬奇 (da Vince, 600年前)

伽利略 (Galileo, 400年前)

牛顿 (Newton, 300年前)

文艺复兴

啟蒙运动 (1688-1789)

自然科学飞速发展

大学設研究生院

始于德国; Johns Hopkins U.(1876)

大学文理分科

中学文理分科

時间

# 蔡元培：文理融合

蔡元培 1868-1940

1918

蔡：文中有理，理中有文

- 反对在大学教育中文理分离
- 重组北京大学教育框架，以科设系
- 改革课程要求，让文科生必修一些理科，让理科生必修一些文科——现代通识教育的开始

（比美国早约15年）

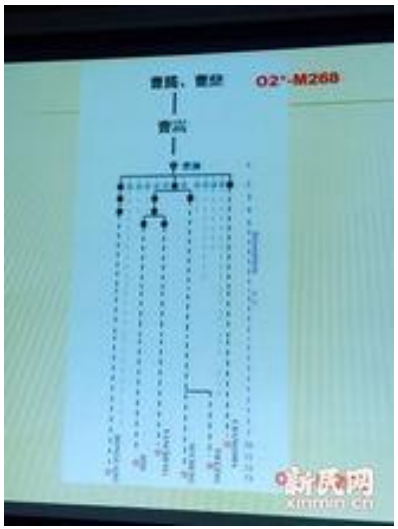
# 文理交融的例子：曹操出身

*Journal of Human Genetics* **57**, 216-218 (March 2012) | doi:10.1038/jhg.2011.147

## Present Y chromosomes reveal the ancestry of Emperor CAO Cao of 1800 years ago

Chuanchao Wang, Shi Yan, Zheng Hou, Wenqing Fu, Momiao Xiong, Sheng Han（韩升，历史系）, Li Jin and Hui Li（李辉，现代人类学实验室）

Emperor CAO Cao (155AD–220AD) is one of the most famous persons in Chinese history that had changed the history of East Asia. He claimed to be a descendant of Marquis CAO Can and therefore was of aristocratic ancestry. However, this claim has been suspected for around 1800 years. Here, we collected some present clans with full records of 70–100 generations claimed to be descendants of CAO Cao or CAO Can, and validated them by comparing their Y chromosomes. Haplotype O2-M268 is the only one that is enriched significantly in the Emperor's claimed descendant clans ($P=9.323 \times 10^{-5}$, odds ratio=12.72) and, therefore, is most likely to be that of the Emperor. Moreover, our analysis showed that the Y chromosome haplotype of the Emperor is different from that of the Marquis (Haplotype O3-002611). Therefore, Emperor CAO Cao's claim was not supported by genetic evidence. This study offers a successful showcase of the utility of genetics in studying the ancient history.



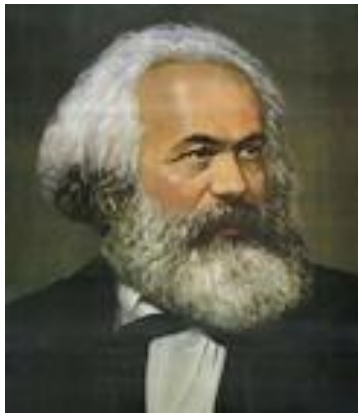

复旦大学发布关于曹操家族DNA研究，首次100%确定曹操家族DNA，突破了三大历史谜团：

- 非汉代丞相曹参后代
- 也并非从夏侯氏抱养
- 也非民间所传避祸改姓“操”

历史教科书将可能改写。

# 文理交融的重要性

- 促创新
- 促就业
- 提升人文学研究水平的必由之路



更重要的是：

- 这是关乎文化自信（文理融合是蔡元培首创）
- 让人文学成为自然科学的一部分是马克思于1844年早已提出的预言和愿景

人科就是继承这个传统的当前实践

三观是人文学的范畴

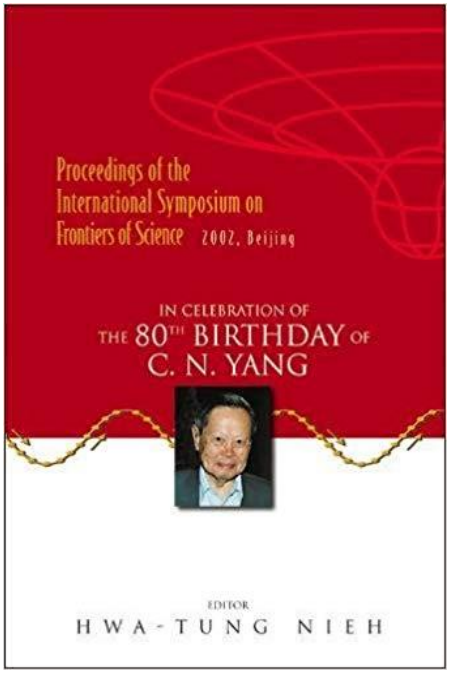
国内所有问题与人文学有关

人文学和人文是两个不同的东东，两者的英文字近似但不一样，分别是humanities 和 humanity（前者非后者的众数，切记）。把人文学称为人文，会引起严重混乱，真理就会愈辩愈糊塗。

# 新文科的三个例子

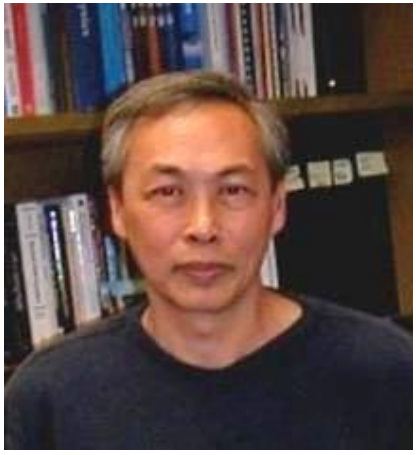
（文史哲）

# 1. 历史物理学




杨振宁80大寿
清华学术研讨会（2002）

杨振宁与翁帆
（2004）



历史物理学首篇文章（2002）
作者：林磊（Lui LAM）
首发于杨振宁80大寿研讨会

Modern Physics Letters B, Vol. 16, No. 30 (2002) 1163–1176


## HISTOPHYSICS: A NEW DISCIPLINE*

LUI LAM
Department of Physics, San Jose State University,
San Jose, CA 95192-0106, USA
luilam@email.sjsu.edu

Received 17 June 2002

History is the most important discipline of study. The system investigated in history is a many-body system consisting of biological material bodies, Homo sapiens, and hence can be studied scientifically. The unique role physicists can play in advancing the science of human history is presented. We will discuss the methods of study in history; worldviews; modeling history as a complex, dynamical system; predicting the future and retrodicting the past; and artificial history. In particular, active walk is shown to provide the foundation for a new worldview, and found to be widely applicable in modeling history, as illustrated by three examples from economic, evolutionary and social histories, respectively.

Keywords: Histophysics; history; physics; complex systems; artificial history; active walk.

### 1. Introduction

New disciplines of study are born from time to time, like in the case of human babies, but less frequently. Or, for that matter, like new stars emerging in the sky, being suddenly noticed after a long period in the making.

Historically, when physics is combined with other natural sciences, new disciplines are created and we have astrophysics, biophysics, geophysics, and so on. More recently, econophysics was born when physicists ventured into economics, a branch of the social sciences.[1] (Similarly in the field of biology, in 1975, sociobiology was created when biology was merged with sociology by Edward Wilson.[2]) In this article, physics is linked to history, giving birth to a new discipline — histophysics.

Since the nineteenth century, history has been treated as a science intermittently through the efforts of Condorcet, Comte, Buckle, Taine, Adams, and others.[3,4] The progress has been uneven, and there are even doubts as to whether this endeavor is at all possible, given the complexity and the irreproducible nature of historical processes. As argued in this article, the system under study in history is actually

*Contribution to the International Symposium on Frontiers of Science: In Celebration of the 80th Birthday of Chen Ning Yang (June 2002, Beijing).

# 历史物理学的几个进路

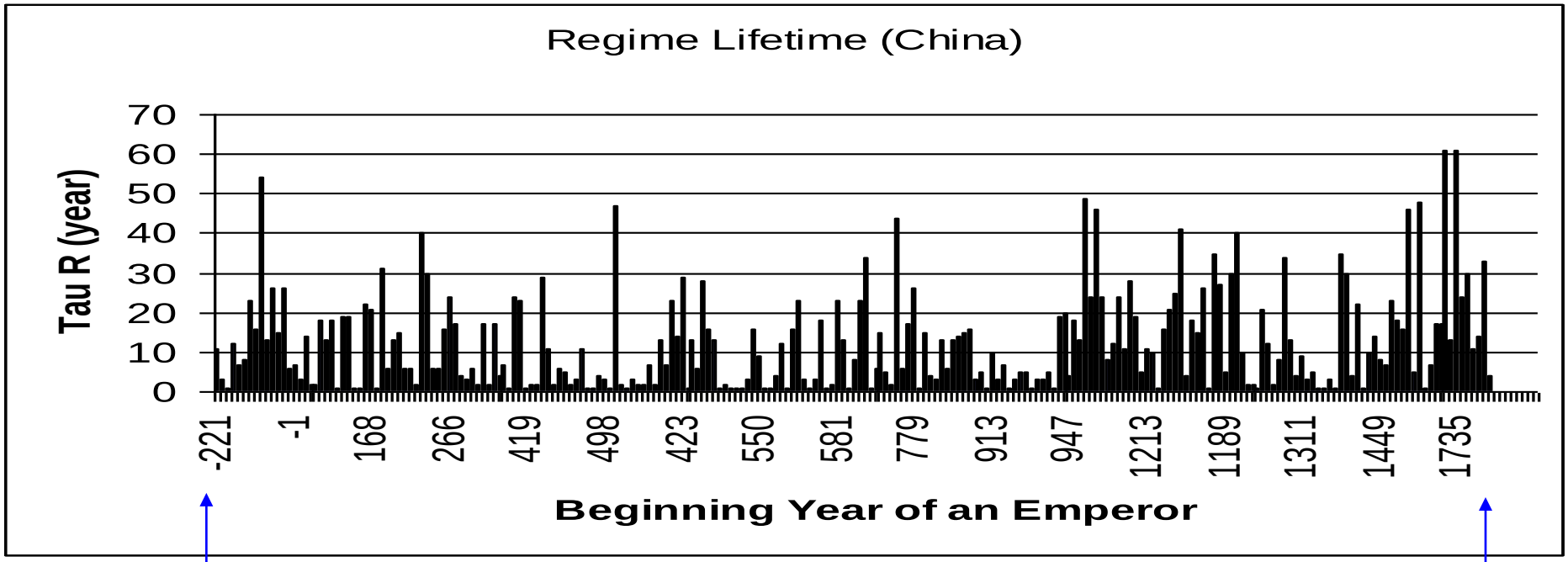
| 层次 | 方法 | 例子 |
| --- | --- | --- |
| 经验层次<br>Empirical | 收集数据，整理数据<br>→ 经验定律<br>统计分析，Zipf描图 | 战争死亡人数分佈，<br>中国朝代寿命分佈 |
| 唯象层次<br>Phenomenological | 计算机建模，活性行走 | 经济史、人类演化史、<br>社会演化史建模 |
| 从下而上层次<br>Bottom-Up | 计算机模擬 | 模擬历史上村落的演变 |

需要问为什么

林磊："人类的历史：人科的一门"，《人科》章13 (人大出版社，2013)

# 中国皇帝的在位时间长度

- Number of emperors = 231
- Average tau R = 12.5 yr (ranges from 1 to 61 yr)
- Total span = 2886 yr (from Qin to Qing)




秦 开始

无规律！

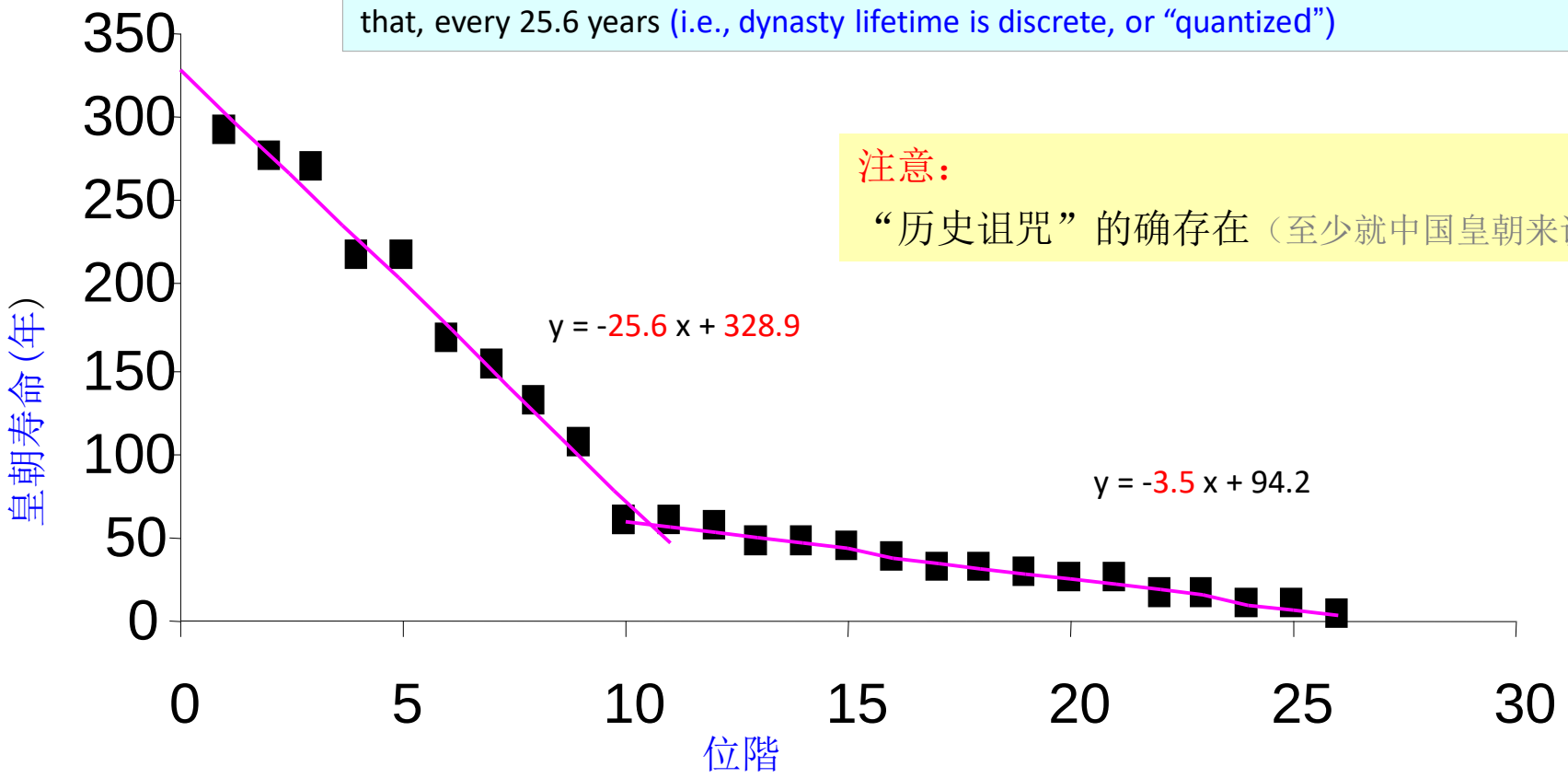
清 结束

# Zipf 描图：中国皇朝寿命分佈的定量定律

Law: A Chinese dynasty can survive every 3.5 years if it lasts less than 57 years; beyond that, every 25.6 years (i.e., dynasty lifetime is discrete, or "quantized")

注意：

"历史诅咒"的确存在（至少就中国皇朝来说）

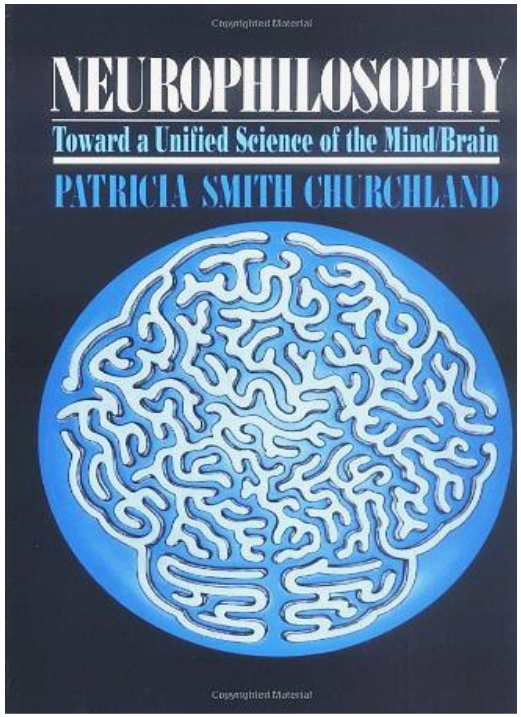



A quantitative prediction (assuming dynasties fall into the bilinear lines):

Any dynasty after Qing, if exists, will either

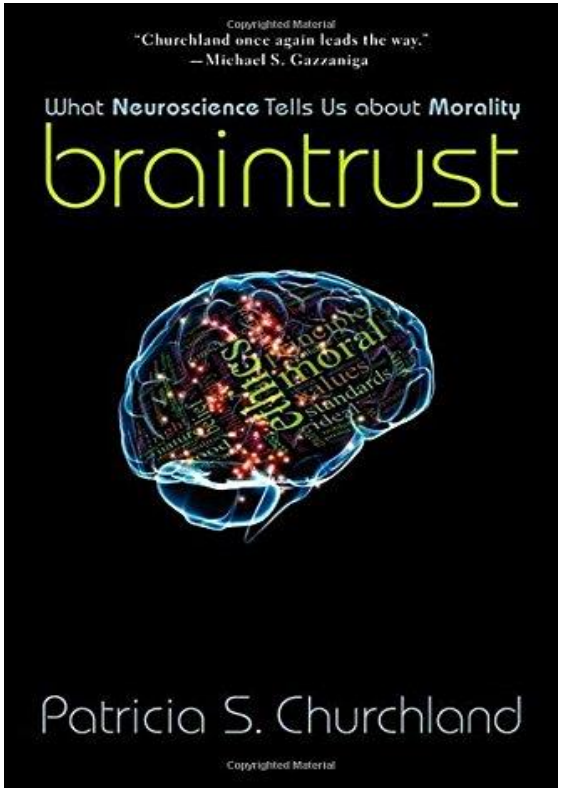
1. last 290 years or less and fall on the two lines, or
2. end definitely and exactly in its year of 329.

# 2. 神经哲学




MIT Press (1989)

- **1st part**: history of the science of nervous systems; general introduction to neurophysiology, neuroanatomy, and neuropsychology.
- **2nd part**: Place the mind-body problem within the wider context of the philosophy of science; inter-theoretic reduction explained; reductionist strategy developed; traditional objections from dualists and other anti reductionists answered.
- **3rd part**: discussion of most promising theoretical developments in functional neurobiology and in the connectionist models within artificial intelligence research.




2012

# 3. 神经电影学


## Neurocinematics: The Neuroscience of Film

in Projections

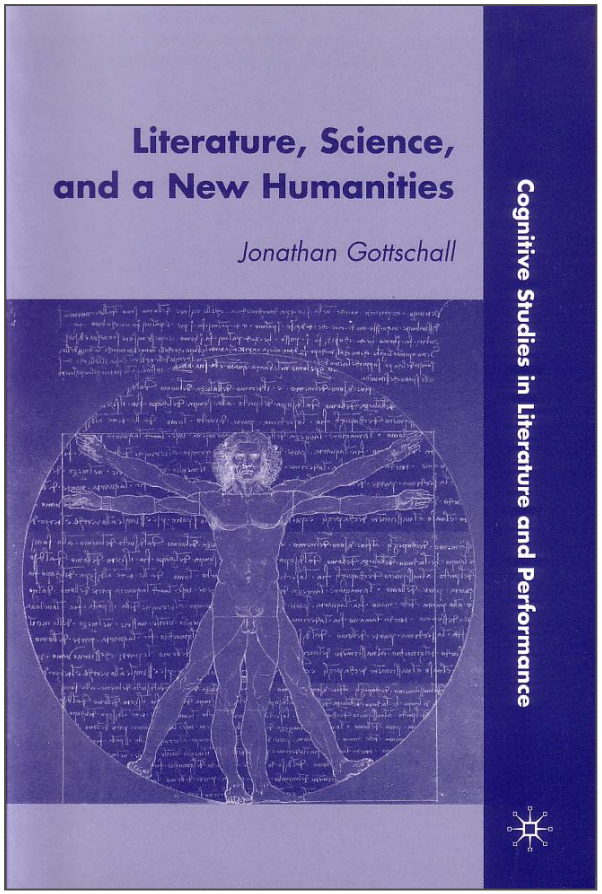
Author: Uri Hasson [1], Ohad Landesman [2], Barbara Knappmeyer [3], Ignacio Vallines [4], Nava Rubin [5] and David J. Heeger [6]

DOI:
https://doi.org/10.3167/proj.2008.020102

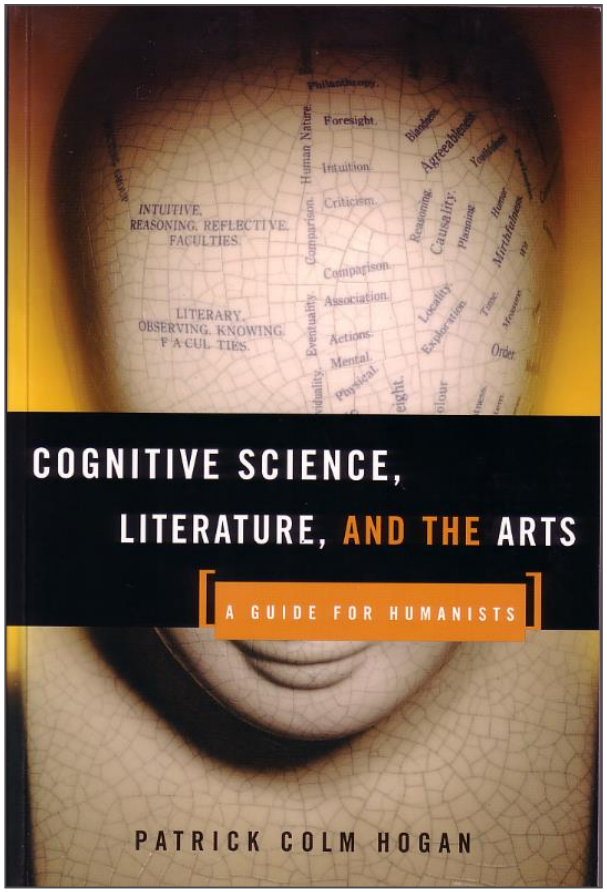
Neurocinematics is a term coined by Uri Hasson at Princeton University, who was among the first to investigate how the brain responds to movies using an fMRI brain scanner. His team looked at the similarity in the brain responses of a group of viewers to different types of films.

It is very useful in designing and assessing the effectiveness of advertisement videos, for example.

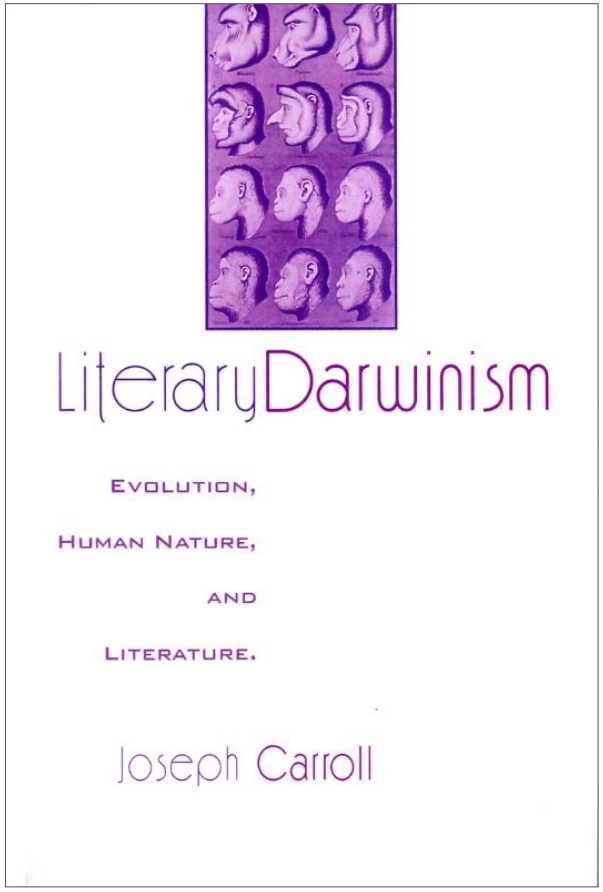
# 人文学学者写的文理交融的书




2008




2003




2004

# 创新之道

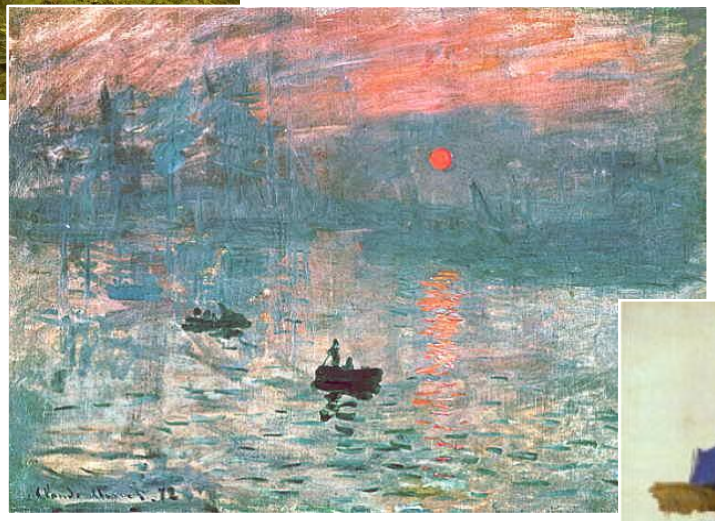
# 创 新 三 种

- 0 → 1（广义相对论，臉書）最难
- 1 → N（狭义相对论，微信）难
- 1 + 1 → N（来自文理交融的创新）相对容易

# 艺 术 创 新

不需验证

写实主义



印象主义

现代主义

# 商 业 创 新

需短期内验证


臉書

好玩

↓

發现空白

↓

填補空白

# 科 学 创 新

- **科学**是人类了解自然界的研究，而不引入上帝或超自然的假设
- 科学有两部分：科学研究过程 + 科学成果

… **创新**… ⟷ 产生突破性成果的原创性工作

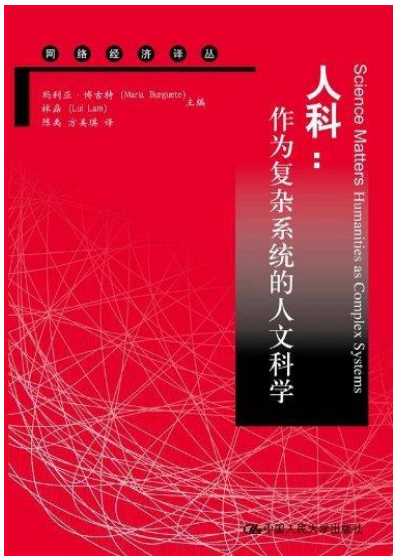
需尽快验证

↓

与人有关 → **人科** (scimat, 人的科学)

创新之道是人科的一門 ！

- 人科是一門新的多学科，关注的是所有研究人的学科
- 人科 = 人文学 + 社會科學 + 醫学
- 通过鼓励人文学者與自然科学工作者的交流與合作，提升人文学研究的科学性



# 创新的科学

- 左脑管语言、逻辑思维、理性。右脑管创意、想象、感性。
- 思维： 10% 有意识； 90% 潜意识 （→ 单靠聪明不能创新）
- 創意的产生
  - 环境触发（多在创新开始）
  - 密集的思维 + 潛意识引发的思维飞跃（多在创新途中）
    - → 间遏放鬆的必要

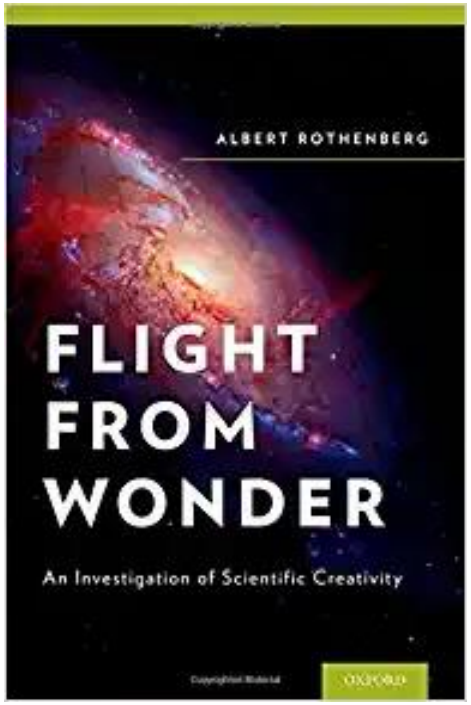
創新不是一个纯推理过程（用到左脑右脑，牵涉理性与感性）

# 與常理相反关于创新的实验结果

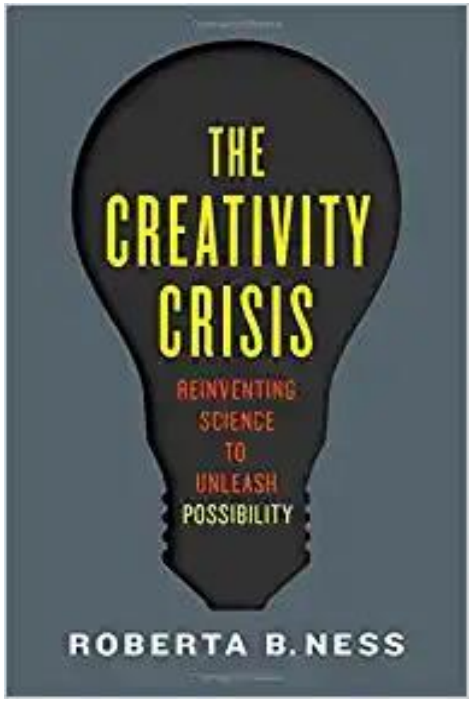
- 个人思维比集体思维有效
- 单干比团队有效
- 小团队比大团队有效
- 奖金有害

Innovation processes

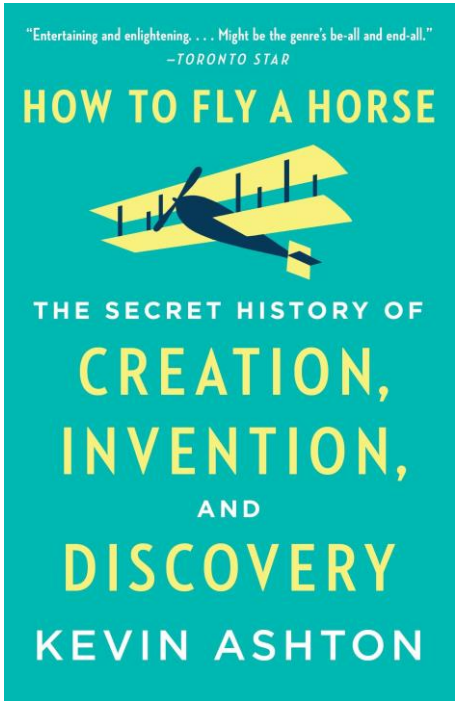
- Janusian
- Sepcon
- Homospatial




2015




2015




2015

# 创 新 的 优 化

在中国，创新阻力不在錢投入太少，
而在束缚科研人员的因素太多

## 作为个人

- 掌控自己的时间 （简化生活，不做饭、适度休息、少出文章、 …）
- 不从众（不做热门课题除非你有独到的想法）
- 别跟队（别用人家的方法做同样题目除非…）
- 多试、多“玩”（跟兴趣走、好玩为要、检讨失败）
- 及早自立门户
- 体力（保持健康）

选题

1. 先决定不做什么
2. 后决定要做什么
3. 选有决定性影响的题目
4. 不单为可出文章而做

## 作为组织

- 继续做好大型实验、国家实验室的工作
- 为支援个人做好准备
- 保護独立异行的个人
- 把众人基本工资提到中上水平
- 别添乱（别数文章，别把学术做假定义得太窄）

# 文理交融的创新例子

# 《青蛙回家》

Kaeru B Back

《旅かえる》 Frog Be Back

《青蛙回家》

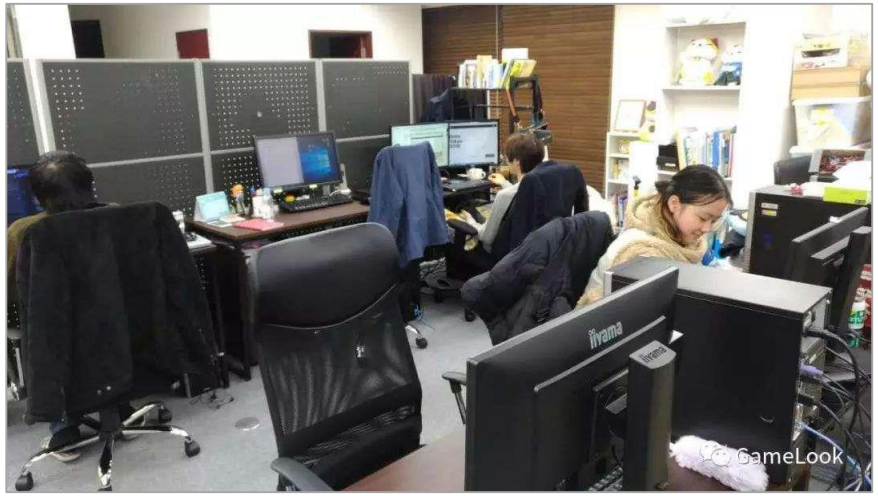
- A role-playing game (RPG), red hot in China in Jan. 2018
- Frog lives at home, leaving and coming back at will, which players can't control (like a rebellious, teenage son or a lousy husband)
- Players just wait or send postcards but can encourage him to come home by putting food on table, etc.



Creator 上村真裕子

- Invented by a Japanese woman 上村真裕子
- Producer, team of 4, Hit-Point Workshop (26 people)
- It took 10 months from concept to distribution
- In Apple app store, 95% download from China; only 1% from Japan
- In two months, 22 million downloads (including unauthorized Chinese-language copies, called 《青蛙回家》)

Success reason: resonant with people's feelings—a humanities skill



# 国际人科规划

# 国际人科规划的宗旨

2007年开始

- 回归亚里士多德的做法，把大自然的所有事物放在同一个平台上来研究（而不引入超自然的假设）
- 继承蔡元培文理不分的传统

Step 1

# 国际会议系列（隔年一次）

The First International Conference on

**SCIENCE MATTERS:** A UNIFIED PERSPECTIVE

MAY 28-30, 2007
Ericeira, Portugal

*"Everything in Nature is a part of science."*

All earnest and honest human quests for knowledge are efforts to understand nature, which includes all human and nonhuman systems, the objects of study in science. Thus, broadly speaking, all these quests are science matters. The methods and tools used may be different; for example, the literary people use mainly their bodily sensors and their brain as the information processor, while natural scientists may use, in addition, measuring instruments and computers. Yet, all these activities could be viewed in a unified perspective—they are scientific developments at varying stages of maturity and have a lot to learn from each other. In this conference, we invite experts from different disciplines worldwide to share their experience and outlooks, and hopefully plan the future together.

Many of the topics included in this conference are under the name of science and culture, science and art, science and society, etc. We do not think these descriptions are useful. For example, by saying "science and culture," it implies that science and culture are two different things, which could be opposing each other. Instead, we view them as different aspects of the same thing—the effort to understand nature, and a new word "science matters" is called for.

Invited Speakers

Leonor Béltran (Portugal, *The nature of dance*)
Paulo Borges (Portugal, *Buddhism, meditation & science of mind*)
Maria Burguete (Portugal, *History & philosophy of contemporary chemistry*)
Paul Caro (France, *Culture through science: A new world of images and stories*)
Clara Pinto Correia (Portugal, *Biology: Manipulation of scientific information*)
Alfredo Dinis (Portugal, *Has neuroscience any theological consequences?*)
Isabel Empis (Portugal, *Psychology & life quality*)
Gilbert Fayl (Belgium, *Policy fallacy: Stop talking, do it*)
Bernardo Herold (Portugal, *Science & society*)
Brigitte Hoppe (Germany, *The role of physiognomy in science and art*)
Lui Lam (USA, *Histophysics: Integrating history with physics*)
Daguang Li (China, *Science communication in China*)
Bing Liu (China, *Philosophy of science and Chinese sciences*)
Dun Liu (China, *History of science in globalizing time*)
Edgar Morin (France, *Did a scientific revolution begin?*)
João Arriscado Nunes (Portugal, *Unified science or ecologies of practices?*)
Maurizio Salvi (Italy, *Science & ethics*)
Nigel Sanitt (UK, *The tripod of science: Communication, philosophy and education*)
Michael Shermer (USA, *The science of good and evil*)

Advisors

Paul Caro (France)
Gilbert Fayl (Belgium)
Brigitte Hoppe (Germany)
João Arriscado Nunes (Portugal)
Maurizio Salvi (Italy)
Michael Shermer (USA)
Edward Wilson (USA)

Cochairs

Maria Burguete (Portugal)
Lui Lam (USA, lui2002lam@yahoo.com)

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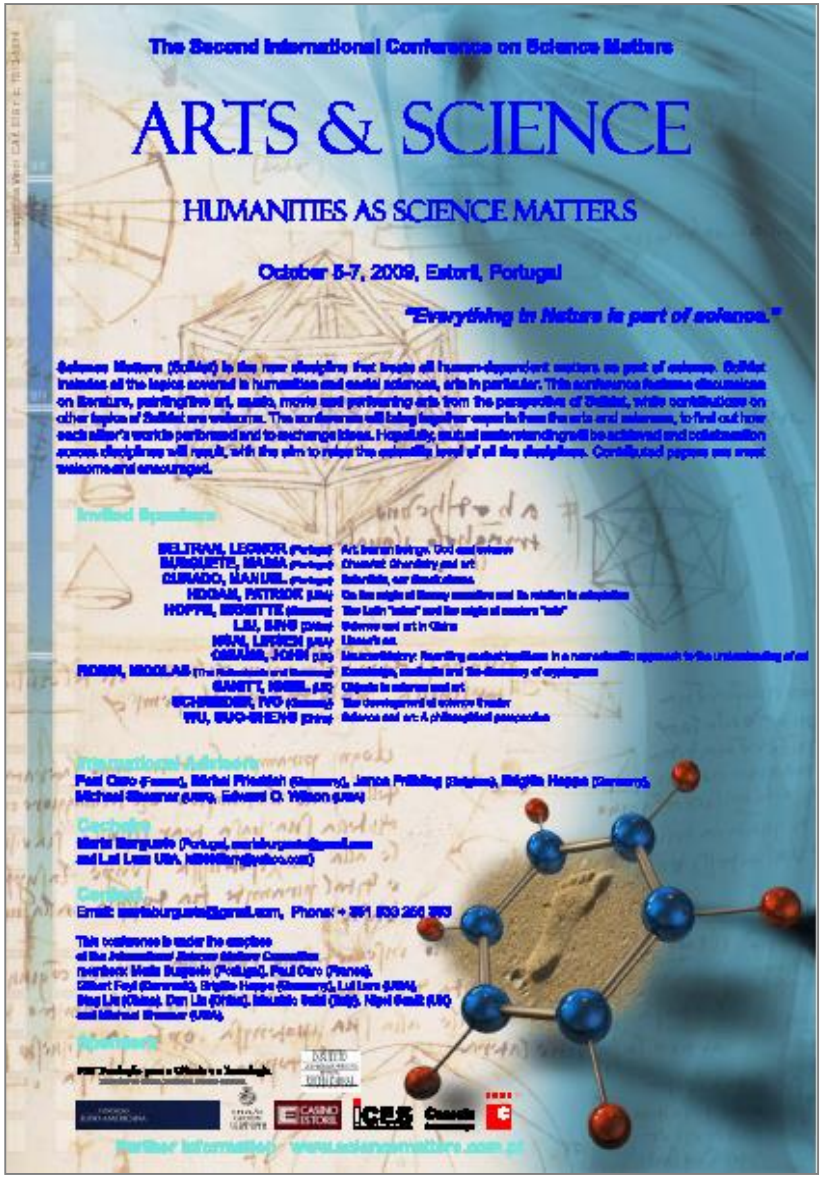
Centro de Estudos Sociais da Universidade Coimbra, Barclays Bank, Fundação Luso-Americana, Fundação para a Ciencia e Tecnologia, Fundação Oriente, Fundação Calouste Gulbenkian, British Council

Further information www.ces.uc.pt/science_matters_meeting

2007



The Second International Conference on Science Matters

# ARTS & SCIENCE

## HUMANITIES AS SCIENCE MATTERS

October 5-7, 2009, Estoril, Portugal

*"Everything in Nature is part of science."*

2009


Third International Science Matters Conference
ALL ABOUT SCIENCE
PHILOSOPHY, HISTORY, SOCIOLOGY & COMMUNICATION
Calouste Gulbenkian Foundation, Lisbon, Portugal
November 21-23, 2011
"Everything in Nature is part of science."
Science Matters (SciMat) is the new discipline that treats all human-dependent matters as part of science, wherein, humans (the material system of Homo sapiens) are studied scientifically from the perspective of complex systems. Science is a subset of human activities aiming to understand how Nature (consisting of human and nonhuman systems) works. The Science process is a human-dependent matter and hence part of SciMat. This third international conference in the biannual series features discussions on human-dependent parts of science, emphasizing the philosophy, history, sociology and communication of science from the perspective of SciMat, while contributions from other topics of SciMat are welcome and encouraged. The conference is made up of review talks on all aspects of science by top experts around the world, and contributed papers. SciMat website: www.sjsu.edu/people/lui.lam/scimat
Invited Speakers
United Kingdom DAVID PAPINEAU Skeptical Philosophy of Science
United Kingdom NIGEL SANITT What Do Scientists Know!
Germany JURGEN RENN The Globalization of Knowledge in History
Australia ROBIN WARREN Discovering Helicobacter (Nobel Prize 2005)
USA/China LUI LAM All About Science and Science Matters
Portugal MARIA BURGUETE Medical Studies in Coimbra 1911
United Kingdom PETER BROKS Science Communication: A History and Review
Israel SORIN SOLOMON A Unified Framework for Art and Science
Portugal/UK ISABEL PESSOA-LOPES Homo Cosmicus, Natura Fractalis
Portugal FRANCISCO SANTOS Evolutionary Dynamics of Collective Action
China LI-MENG QIU Motivation Degrees of the Traditional and the Simplified Chinese Characters
Spain MARTA RUEDA Synchronicity: Approaching the Mind-Matter Dialog
United Kingdom KAJSA BERG Understanding Art through Science: From Socrates to the "Contextual Brain"
Portugal LEONOR BELTRAN Creative Dance
Portugal FRANCISCO MACHADO Planet Earth: Enough for All?
International Advisors
Paul Caro (France), Bärbel Friedrich (Germany), Janos Frühling (Belgium), Brigitte Hoppe (Germany), Dun Liu (China), Nigel Sanitt (UK), Michael Shermer (USA), Edward O. Wilson (USA)
Cochairs
Maria Burguete (Portugal, confsciencematters@gmail.com)
Lui Lam (USA, lui2002lam@yahoo.com)
Contact
Email: confsciencematters@gmail.com, Phone: + 351 933 256 303
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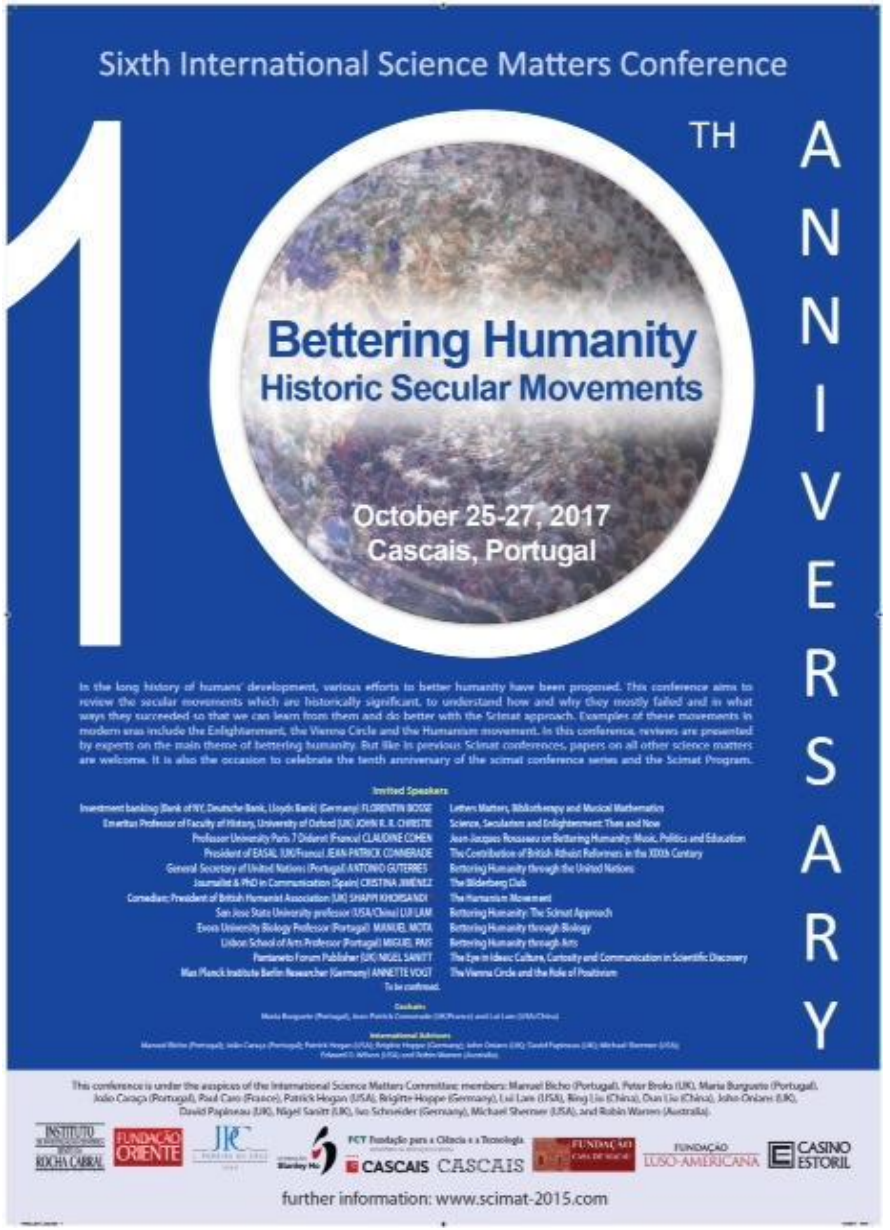
This conference is under the auspices of the International Science Matters Committee: members: Maria Burguete (Portugal), Paul Caro (France), Patrick Hogan (USA), Brigitte Hoppe (Germany), Lui Lam (USA), Bing Liu (China), Dun Liu (China), John Onians (UK), Nigel Sanitt (UK), Ivo Schneider (Germany) and Michael Shermer (USA).
Further Information: www.sciencemattersconferences.com

2011


Sixth International Science Matters Conference
10TH ANNIVERSARY
Bettering Humanity
Historic Secular Movements
October 25-27, 2017
Cascais, Portugal
In the long history of humans' development, various efforts to better humanity have been proposed. This conference aims to review the secular movements which are historically significant, to understand how and why they mostly failed and in what ways they succeeded so that we can learn from them and do better with the Scimat approach. Examples of these movements in modern eras include the Enlightenment, the Vienna Circle and the Humanism movement. In this conference, reviews are presented by experts on the main theme of bettering humanity. But like in previous Scimat conferences, papers on all other science matters are welcome. It is also the occasion to celebrate the tenth anniversary of the scimat conference series and the Scimat Program.
Invited Speakers
Investment banking (Bank of NY, Deutsche Bank, Lloyds Bank) (Germany) FLORENTIN BOSSE Letters Matters, Bibliotherapy and Musical Mathematics
Emeritus Professor of Faculty of History, University of Oxford (UK) JOHN R. R. CHRISTIE Science, Secularism and Enlightenment: Then and Now
Professor University Paris 7 Diderot (France) CLAUDINE COHEN Jean-Jacques Rousseau on Bettering Humanity: Music, Politics and Education
President of EASAL (UK/France) JEAN-PATRICK CONNERADE The Contribution of British Atheist Reformers in the XIXth Century
General Secretary of United Nations (Portugal) ANTONIO GUTERRES Bettering Humanity through the United Nations
Journalist & PhD in Communication (Spain) CRISTINA JIMÉNEZ The Bilderberg Club
Comedian; President of British Humanist Association (UK) SHAPPI KHORSANDI The Humanism Movement
San Jose State University professor (USA/China) LUI LAM Bettering Humanity: The Scimat Approach
Evora University Biology Professor (Portugal) MANUEL MOTA Bettering Humanity through Biology
Lisbon School of Arts Professor (Portugal) MIGUEL PAIS Bettering Humanity through Arts
Pantaneto Forum Publisher (UK) NIGEL SANITT The Eye in Ideas: Culture, Curiosity and Communication in Scientific Discovery
Max Planck Institute Berlin Researcher (Germany) ANNETTE VOGT The Vienna Circle and the Role of Positivism
To be confirmed.
Cochairs
Maria Burguete (Portugal), Joao Patrick Commander (UK/France) and Lui Lam (USA/China)
International Advisors
Manuel Biche (Portugal), João Caraça (Portugal), Patrick Hogan (USA), Brigitte Hoppe (Germany), John Onians (UK), David Papineau (UK), Michael Shermer (USA), Edward O. Wilson (USA), and Robin Warren (Australia).
This conference is under the auspices of the International Science Matters Committee: members: Manuel Biche (Portugal), Peter Broks (UK), Maria Burguete (Portugal), João Caraça (Portugal), Paul Caro (France), Patrick Hogan (USA), Brigitte Hoppe (Germany), Lui Lam (USA), Bing Liu (China), Dun Liu (China), John Onians (UK), David Papineau (UK), Nigel Sanitt (UK), Ivo Schneider (Germany), Michael Shermer (USA), and Robin Warren (Australia).
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FCT Fundação para a Ciência e a Tecnologia
CASCAIS
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CASINO ESTORIL
further information: www.scimat-2015.com

2017

Step 2

# 国际人科委员会

ISMC（成立于2007年5月30日）

## 委员

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2. Peter **Broks** (UK)
3. Maria **Burguete** (Portugal)
4. João **Caraça** (Portu gal)
5. Paul **Caro** (France)
6. Jean -Patrick **Connerade** (UK/France)
7. Patrick **Hogan** (USA)
8. Brigitte **Hoppe** (Germany)
9. Lui **Lam** (USA), *Coordinator*
10. Bing **Liu** (China)
11. Dun **Liu** (China)

President , International Union of History and Philosophy of Science (2009-2013)

12. John **Onians** (UK)

Father of Neuroarthistory

13. David **Papineau** (UK)

President, British Society for Philosophy of Science (1993-1995)

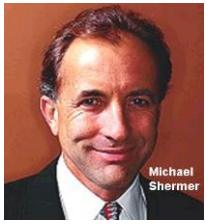
14. Kok Khoo **Phua** (Singapore)
15. Nigel **Sanitt** (UK)

Publisher of World Scientific

16. Ivo **Schneider** (Germany)
17. Michael **Shermer** (USA)
18. Robin **Warren** (Australia)

Ex-President, European Academy of Sciences Arts & Letters

Author, *Cognitive Science, Literature and the Arts*




Columnist, *Scientific American* ; Editor, *Skeptic* Magazine

Nobel Laureate (2005)

## 目的

传播人科理念与推进国际人科规划

Step 3

人科丛书

Connecting Great Minds

# SCIENCE MATTERS SERIES

Founder and Editor: Lui Lam

**Scimat** (Science Matters) is the new discipline that treats all human-dependent matters as part of science, wherein, humans (the material system of Homo sapiens) are studied scientifically from the perspective of complex systems. That "Everything in Nature is Part of Science" was well recognized by Aristotle and da Vinci and many others. Yet, it is only recently, with the advent of modern science and experiences gathered in the study of evolutionary and cognitive sciences, neuroscience, statistical physics, complex systems and other disciplines, that we know how the human-related disciplines can be studied scientifically. **Science Matters Series** covers new developments in all the topics in humanities and social sciences from the Scimat perspective, with emphasis on the humanities.

Science Matters Series - No. 3

## All About Science

**Philosophy, History, Sociology & Communication**

edited by **Marta Burguete** *(Bento da Rocha Cabral Institute for Scientific Research)* & **Lui Lam** *(San Jose State University)*

There is a lot of confusion and misconception concerning science. The nature and contents of science is an unsettled problem. For example, Thales of 2,600 years ago is recognized as the father of science but the word science was introduced only in the 14th century; the definition of science is often avoided in books about philosophy of science. This book aims to clear up all these confusions and present new developments in the philosophy, history, sociology and communication of science. It also aims to showcase the achievement of China's top scholars in these areas. The 18 chapters, divided into five parts, are written by prominent scholars including the Nobel laureate Robin Warren, sociologist Harry Collins, and physicist-turned-historian Dietrich Stauffer.

**Contents:** About Science 1: Basics — Knowledge, Nature, Science and Scimat *(Lui Lam)*; About Science 2: Philosophy, History, Sociology and Communication *(Lui Lam)*; ***Philosophy of Science:*** Towards a Phenomenological Philosophy of Science *(Guo-Sheng Wu)*; The Predicament of Scientific Culture in Ancient China *(Hong-Sheng Wang)*; What Do Scientists Know! *(Nigel Sanitt)*; How to Deal with the Whole: Two Kinds of Holism in Methodology *(Bi-Yang Liu)*; ***History of Science:*** *Helicobacter*: The Ease and Difficulty of a New Discovery *(Robin Warren)*; Science in Victorian Era: New Observations on Two Old Theses *(Dun Liu)*; Medical Studies in Portugal Around 1911 *(Maria Burguete)*; The Founding of the International Liquid Crystal Society *(Lui Lam)*; ***Sociology of Science:*** Three Waves in Science Studies *(Harry Collins)*; Solitons and Revolution in China: 1978–1983 *(Lui Lam)*; Scientific Culture in Contemporary China *(Bing Liu and Mei-Fang Zhang)*; ***Communication of Science:*** Science Communication: A History and Review *(Peter Broks)*; Popular-Science Writings in Early Modern China *(Lin Yin)*; ***Other Science Matters:*** Understanding Art Through Science: From Socrates to the Contextual Brain *(Kajsa Berg)*; Spy Video Games After 9/11: Narrative and Pleasure *(Ting-Ting Wang)*; Statistical Physics for Humanities: A Tutorial *(Dietrich Stauffer)*;


**Readership:** Humanists, social and "natural" scientists, and laypeople interested in science.

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| 456pp | Oct 2014 | |
| 978-981-4472-92-0 | US$88 | £58 |
| 978-981-4508-19-3(pbk) | US$45 | £30 |
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# SCIENCE MATTERS SERIES

Science Matters Series - No. 2

## ARTS: A SCIENCE MATTER

edited by **Marta Burguete** *(Scientific Research Institute Bento da Rocha Cabral, Portugal)* & **Lui Lam** *(San Jose State University, USA)*


This book treats arts as part of science, from the unified perspective of Science Matters. It contains 17 chapters, with 18 contributors who are prominent humanists, professional artists, or scientists. It consists of three parts: Part I: Philosophy and History of Arts; Part II: Arts in Action; Part III: Understanding Arts. The book is aimed at both research scholars and laypeople, and is unique in two important aspects.

It is probably the first and only book that academic professionals and practicing artists contribute to the same book, as equals, on the common theme of creating and understanding arts. (Artists here include Crisvina Leirta whose huge Kun Iam (Goddess of Mercy) sculpture is an important landmark in Macau, and the famous movie director, Hark Tsui, who is publishing his first ever article on movie-making). Perhaps more importantly, a new understanding of the origin and nature of arts is offered for the first time, which is more convincing than all the other hypotheses put forth in the last two thousand years.

**Readership:** Scientists, artists, humanists and laypeople.

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|---|---|---|
| 396pp | Apr 2011 | |
| 978-981-4324-93-9 | US$78 | £48 |
| 978-981-283-594-9(ebook) | US$95 | £62 |

Science Matters Series - No. 1

## SCIENCE MATTERS

**Humanities as Complex Systems**

edited by **Marta Burguete** *(Scientific Research Institute Bento da Rocha Cabral, Portugal)* & **Lui Lam** *(San Jose State University, USA)*

Thus "everything in Nature is part of science" was well recognized by Aristotle, da Vinci and many others. Yet, it is only recently, with the advent of modern science and experiences gathered in the study of statistical physics, complex systems and other disciplines, that we know how the human-related disciplines can be studied scientifically.

Science Matters is about all human-dependent knowledge, wherein humans (the material system of Homo sapiens) are studied scientifically from the perspective of complex systems. It includes all the topics covered in the humanities and social sciences. Consisting contributions from knowledgeable humanists, social scientists and physicists, the book is intended for those — from artists to scientists — who are curious about the world and are interested in understanding it with a unified perspective.

**Readership:** Physicists and other scientists, social scientists, humanists and laypeople.

| | | |
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| 271pp | Nov 2008 | |
| 978-981-283-593-2 | US$73 | £48 |
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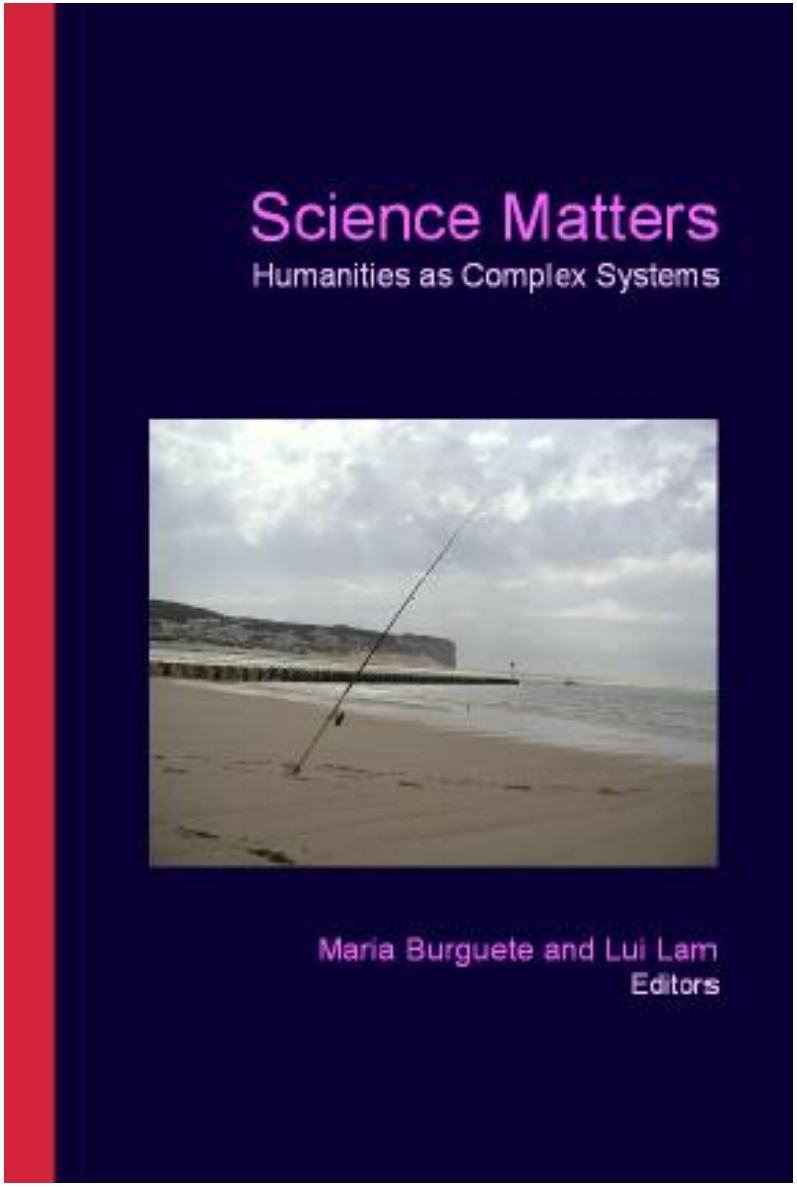
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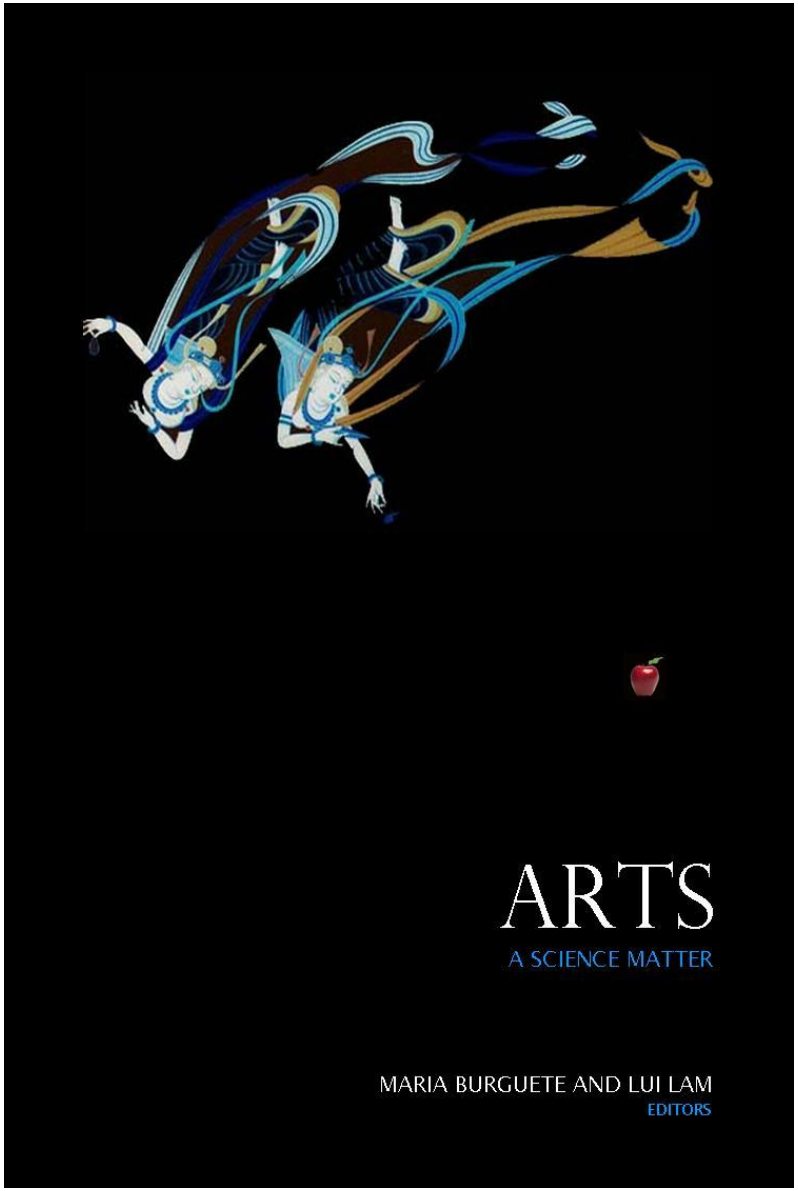
Humanities as Complex Systems
Maria Burguete and Lui Lam
Editors

2008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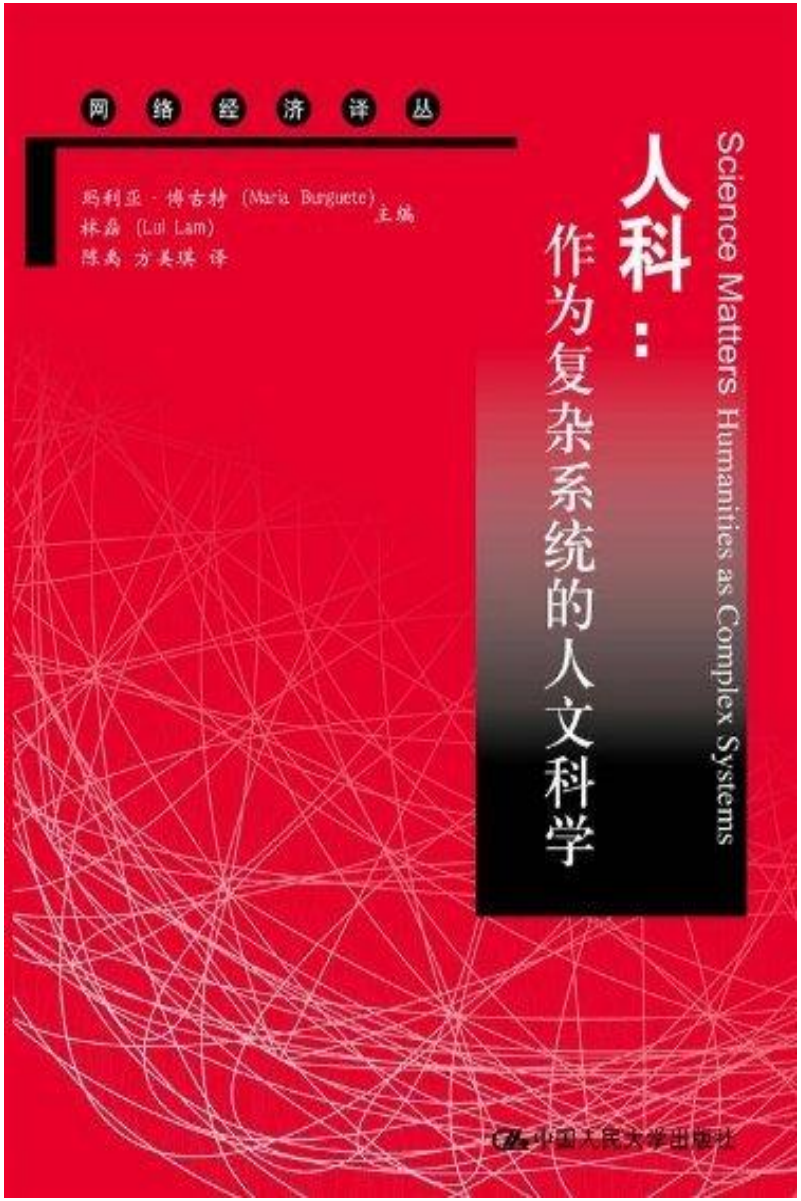
EDITORS

2011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林磊 (Lui Lam)
陈禹 方美琪 译
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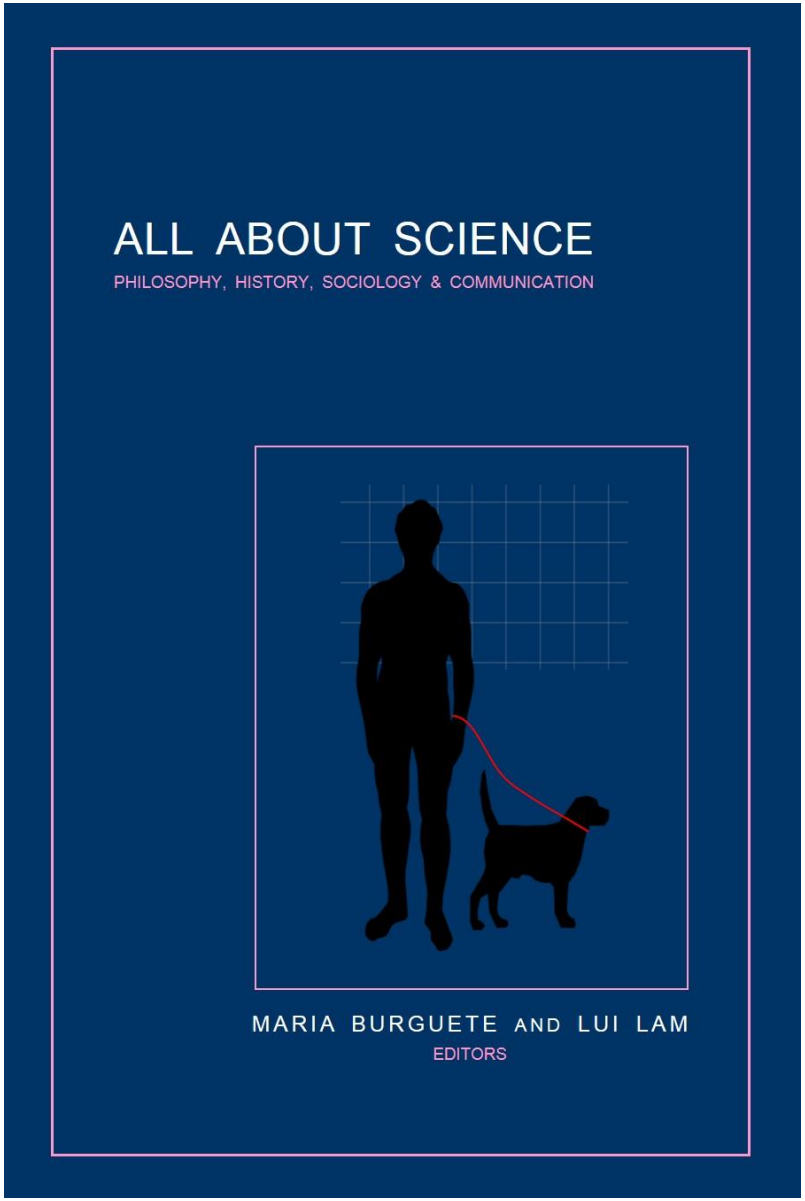
作为复杂系统的人文科学
Science Matters Humanities as Complex Systems
中国人民大学出版社

2013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EDITORS

2014

Step 4

# 在全球建立100个国际人科中心

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- 每两年颁个全球性的＂国际人科奖＂
- 资助短期的做文理交融的访问学者（请进来或走出走）
- 资助校内文学院和理学院的老师们合作，建立文理交融的新文科课程（比如历史物理学）
- 在国内及全球推广一门新的通识课：＂人文学、科学、人科＂

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**Humanities, Science, Scimat:**

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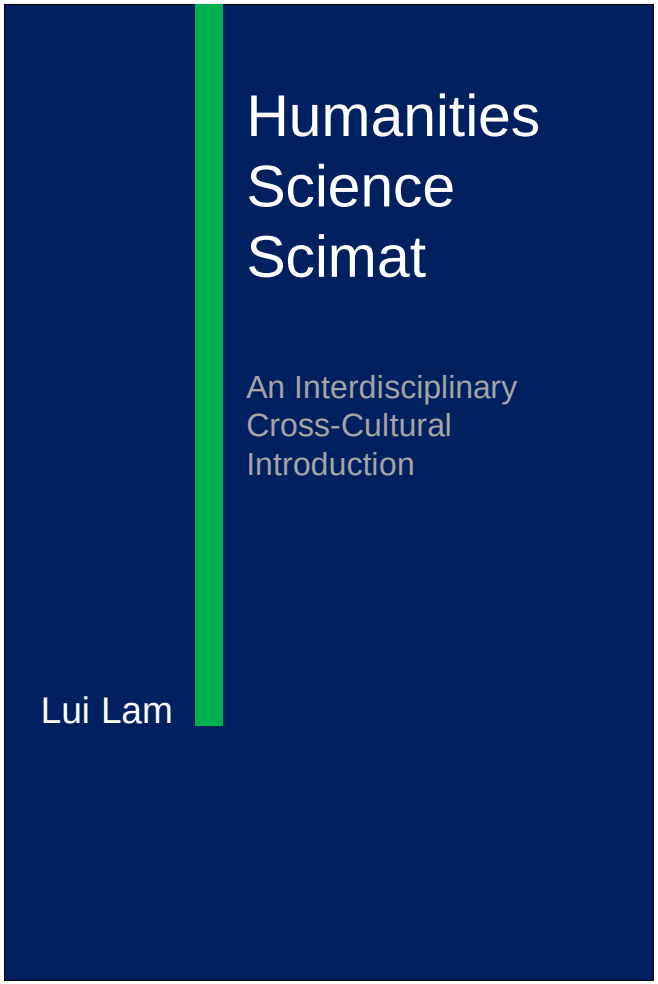


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# 结 語

- 新文科是完成中国梦第三部分（文化受敬）的突破点
- 新文科的建立来自文化自信（继承蔡元培首倡的文理融合传统）
- 文理交融是能让人文学成为自然科学一部分（马克思遗愿）的必由之路
- 文理交融能促创新

广东外语外贸大学公开学术讲座

# 新文科、文理交融、创新

**时间：**2019年11月28日，周四，下午2:30-4:00

**地点：**北校区云山A座一楼教师发展中心（云山会堂对面）

**演讲人：**林磊教授（美国加州圣何塞州立大学）

**内容简介：**最近一批大学校长书记座谈，提出了大学要搞新文科，搞文理交融，为的是让文科毕业生能更好地为社会服务，办法是大学要清除一些行政壁垒，让文科生学点新科技，为大学生带来一场＂学习革命＂（《光明日报》19.07.24）。本人从事文理交融工作20年，于2007年在国际上提出了一门新的跨学科：人科（scimat），即把与人有关的所有学科（人文学、社会科学、医学）放在一起，互相渗透，共同提高，促使人文学和自然科学融合，鼓励双方研究人员合作。在过去12年，人科已建立了一个国际平台（包括隔年一个国际会议、一套英文丛书、一个国际人科委员会），积累了不少文理交融的经验，取得了在文史哲三方面新的研究成果。事实上，文理交融在世上于1918年由蔡元培在北京大学首先提出及实行，让人文学成为自然科学的一部分是马克思于1844年早已提出的预言和愿景，人科就是继承这个传统的当前实践。本报告从文化自信出发，讨论新文科的建立、文理交融之道及其对创新的促进，介绍国内外的成功例子，并说明其背后的原理、历史及发展前景。

**演讲人简介：**林磊，人文学者与物理学家，美国加州圣何塞州立大学教授，中国科学院物理所与中国科学技术协会科普所客座教授。香港大学（一级荣誉）学士、英属哥伦比亚大学硕士、哥伦比亚大学博士。林磊发明了世界上三种液晶之一的“碗形液晶”（1982）、描述复杂系统的“活性行走”（1992），创立了两门新的学科：历史物理学（2002）、人科（2007/2008）。已出版180多篇论文和16本书，包括《Arts》（2011）、《人科》(2013)、《All About Science》(2014)。林磊是国际液晶学会创立者（1990)、“人科”（World Scientific）与“偏序系统”(Springer) 两英文丛书的创立者与主编。目前研究哲学、复杂系统、人科。

lui2002lam@yahoo.com