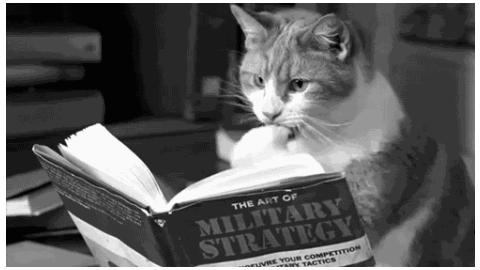
漫谈

如何写好一篇英文科技论文

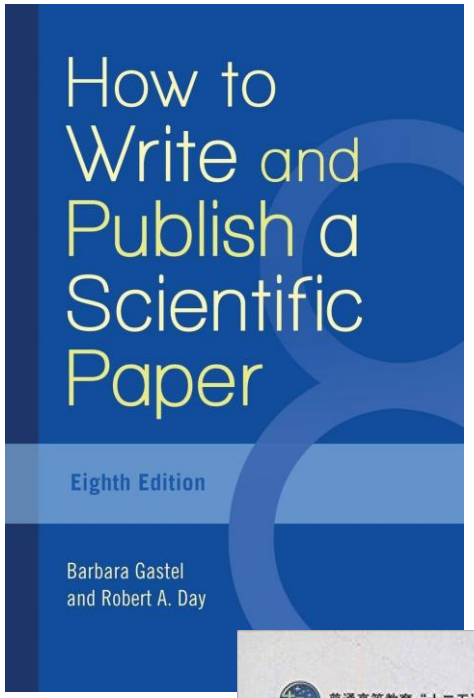
陈关荣

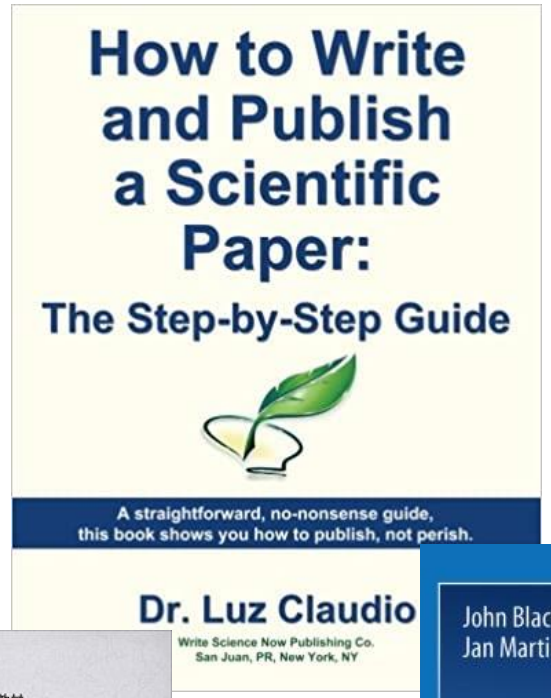
香港城市大学

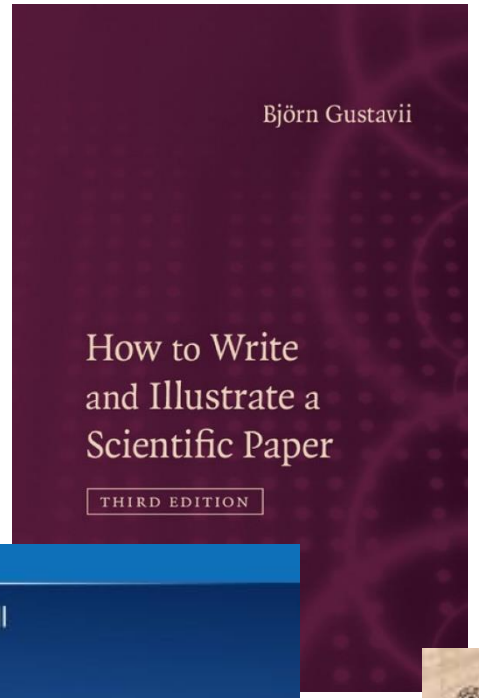


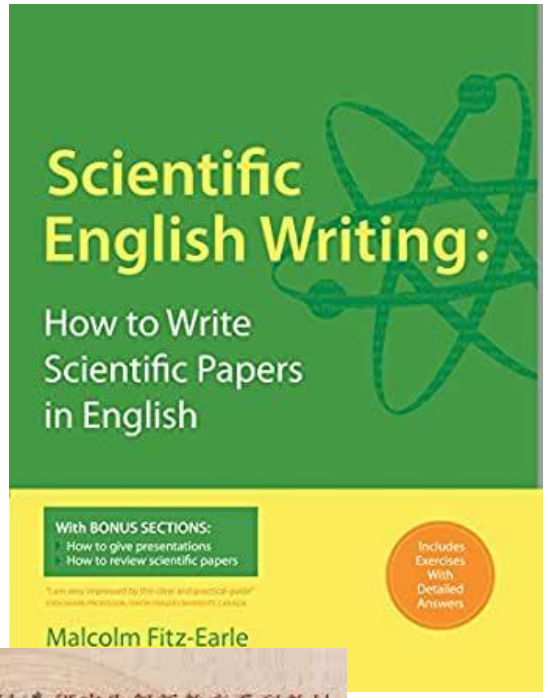
可惜这个共识还不是100%

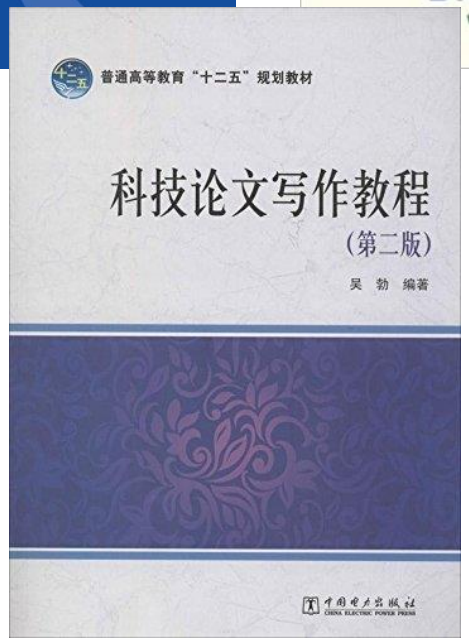
而且来得有点晚 。。。

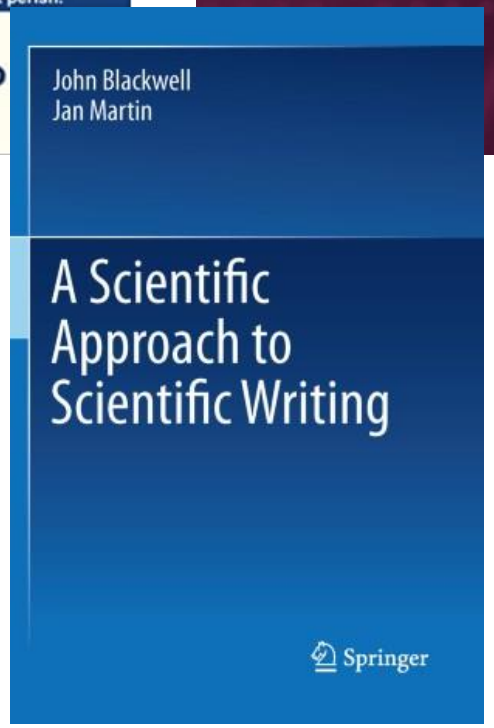

How to Write and Publish a Scientific Paper
Eighth Edition
Barbara Gastel and Robert A. Day


How to Write and Publish a Scientific Paper:
The Step-by-Step Guide
A straightforward, no-nonsense guide, this book shows you how to publish, not perish.
Dr. Luz Claudio
Write Science Now Publishing Co.
San Juan, PR, New York, NY


Björn Gustavii
How to Write and Illustrate a Scientific Paper
THIRD EDITION


Scientific English Writing:
How to Write Scientific Papers in English
With BONUS SECTIONS:
How to give presentations
How to review scientific papers
Includes Exercises With Detailed Answers
Malcolm Fitz-Earle


普通高等教育"十二五"规划教材
科技论文写作教程
(第二版)
吴 勃 编著


John Blackwell
Jan Martin
A Scientific Approach to Scientific Writing
Springer


研究生创新教育系列教材
科技英语论文实用写作指南
(第2版)

今天和大家讲讲英文写作

- 如何写好一篇英文科技论文长期以来是国内理工科研究生颇感为难的事情。不少同学能做很好的研究，但不会写很好的文章。

- 这个讲座旨在提供一点协助，从大的方面着眼，针对理工科学生在拟写技术性论文时经常会遇到的一些疑难问题作出回应和解答、对经常会出现的一些错误作出纠正和评论、以及对经常感到困惑的一些问题作出解释和建议。

- 讲解的方式是将以一篇小文章为例子，从文章题目、摘要、主体、一直到文献的取材和写作，试图较为全面地评述其中英文和技术写作上应该注意的各个方面。

  （为较全面覆盖论题，所引用材料和例子是综合拼凑的）

- 希望研究生同学在日后毕业论文和科技论文写作方面能有所裨益。

一篇科技文章的典型结构

- 题目 Title
- 作者 Authors
- 摘要 Abstract
- 关键词 Keywords
- 引言 Introduction
- 段落 Sections
- 结论 Conclusions
- 致谢 Acknowledgements
- 文献 References
- 附录 Appendix

这个报告如何来讲？

- 用一个简单例子从头讲到尾
- 用我们自己的一篇小文章为例子作评判
  （在这里不好去批评别人的文章）

  - 文章的一点背景
  - 我们是怎样写好这篇文章的
  - 从中提供一些关于写作的建议

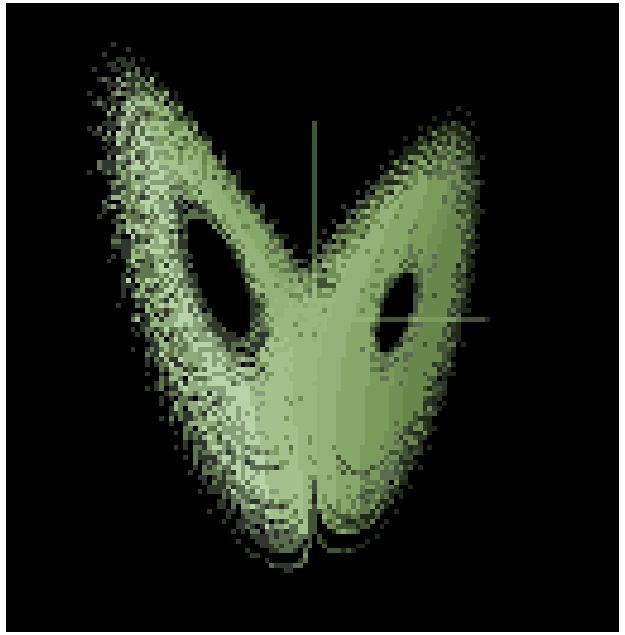
  - 讲一些别的书文报告中没有的个人经验

一点背景 … 混沌 (Chaos)

Lorenz 系统:

$$\begin{cases} \dfrac{dx}{dt} = a(y-x) \\ \dfrac{dy}{dt} = cx - xz - y \\ \dfrac{dz}{dt} = xy - bz, \end{cases}$$

$$a = 10, b = 8/3, c = 28$$



Attractor（吸引子）

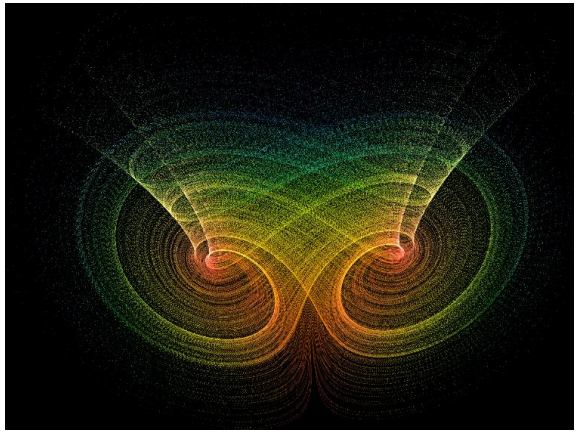
E. N. Lorenz, “Deterministic non-periodic flow,” J. Atmos. Sci., 20: 130-141, 1963

一点背景 … 续

Chen 系统： （Lorenz 系统的对偶系统）

$$\begin{cases} \dfrac{dx}{dt} = a(y-x) \\ \dfrac{dy}{dt} = (c-a)x - xz + cy \\ \dfrac{dz}{dt} = xy - bz, \end{cases}$$

$$a = 35; \quad b = 3; \quad c = 28$$



Attractor（吸引子）

G. Chen and T. Ueta, "Yet another chaotic attractor" Int. J. Bifurcation and Chaos, 9(7): 1465-1466, 1999（被引次数：> 3000 ）

一点背景 … 续

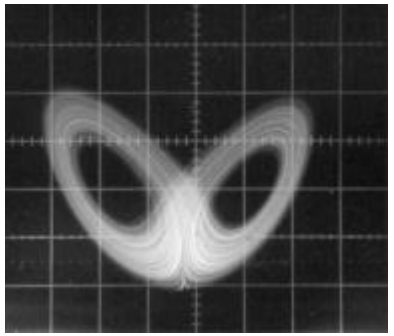
2002, 学生吕金虎和我找到了一个新系统:

$$\begin{cases} \dfrac{dx}{dt} = a(y-x) \\ \dfrac{dy}{dt} = -xz + cy \\ \dfrac{dz}{dt} = xy - bz, \end{cases}$$

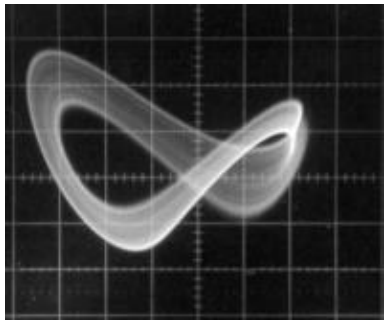
$$a = 36; \quad b = 3; \quad c = 20$$

把 Lorenz 系统和 Chen 系统连接起来

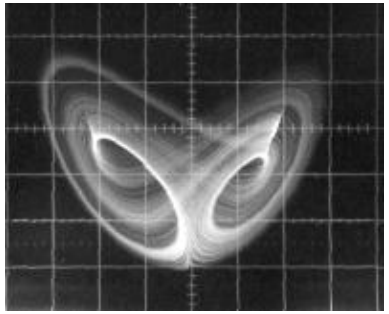
Lorenz



Lu



Chen



有了一个好结果，该写一篇好文章啦！

让我们来看看怎样把一篇文章写好

（尽量不重复大家都知道的常识，而主要讲解
一些大家平常不太注意但又比较重要的方面）

题目

- 文章的题目应该 简单、准确、清晰、雅致
- 下面这个题目如何？

  “A new chaotic attractor connecting the Lorenz attractor and the Chen attractor”

- 准确，但是不够精炼，而且一点也不醒目 ☹
- → **“A new chaotic attractor coined”** ☺
- 另一个例子：

  G. Chen and T. Ueta, **“Yet another chaotic attractor**,” 1999

- 当然，找一个雅致的题目不容易（但不要乱模仿）
- 特别注意：不要当“标题党”

题目 续

- 题目要“简单”，删去多余的字和词。例如：

  “On the study of ...”中的“On”是多余的，可以删掉。

- “The study of ...”和“To study ...”不是好的英文题目。
- 用动名词“Studying ...”领起文章题目在经典文献中比较常见。

总而言之，文章题目非常重要。

建议花点时间构思一个“短好”标题。

短标题的文章常常引用率高

NATURE | NEWS

Papers with shorter titles get more citations

Intriguing correlation mined from 140,000 papers.

Boer Deng

26 August 2015

To William Shakespeare, brevity was the soul of wit. For scientists, it how frequently a research paper is cited.

Adrian Letchford and his colleagues at the University of Warwick in C peer-reviewed papers published between 2007 and 2013 as listed o the papers' titles with the number of times each paper was cited by c measure of importance.

As they report in *Royal Society Open Science*[1], "journals which publ

ROYAL SOCIETY OPEN SCIENCE

Home Content Information for About us Sign up Submit

The advantage of short paper titles

Adrian Letchford, Helen Susannah Moat, Tobias Preis

Published 26 August 2015. DOI: 10.1098/rsos.150266

Article Figures & Data Info & Metrics PDF

Abstract

Vast numbers of scientific articles are published each year, some of which attract considerable attention, and some of which go almost unnoticed. Here, we investigate whether any of this variance can be explained by a simple metric of one aspect of the paper's presentation: the length of its title. Our analysis provides evidence that journals which publish papers with shorter titles receive more citations per paper. These results are consistent with the intriguing hypothesis that papers with shorter titles may be easier to understand, and hence attract more citations.

建议：

花点时间想一个**短好**标题

作者

- **千万不能未经同意就随便地把别人（例如你的导师）的名字加到你的文章上、单方面去投稿。**

  - 你或者以为日后可以给导师一个“惊喜”，其实你可能会被认为是在利用导师的名声去谋私利。

  - 所有作者对文章都负有几乎同等的责任（例如，文章得奖时大家会一同去领功，那么文章受批评时就不能互推责任）。

  - 某一篇文章对于你来说可能是很合适拿去投稿和发表的，但对于另外一个人来说就不见得是一回事。

- 一篇文章在审稿后，不要随意增加或者减少作者的名字（如果确有需要，也必须向编辑解释清楚）。

- 作者排名一般按贡献，但有时也按习惯（和外国朋友合作时要特别注意）。

摘要

- 《摘要》要全面准确、简明握要。

- 下面这个摘要怎么样？

-- “In this letter, we report the finding of a new chaotic attractor in a simple three-dimensional autonomous system, expressed by system (1). This new attractor is shown to be a transition between the Lorenz attractor [1] and the Chen attractor [2]. Also, we demonstrate the connection of the Lorenz system and the Chen system by simulations.”

摘要 续

❖ **摘要** “In this letter, we report the finding of a new chaotic attractor in a simple three-dimensional autonomous system, expressed by system (1). This new attractor is shown to be a transition between the Lorenz attractor [1] and the Chen attractor [2]. Also, we demonstrate the connection of the Lorenz system and the Chen system by simulations.”

❖ **建议：**

- **不要第一人称（主动语态）、第三人称（被动语态）混用**
  —— 至少在同一段落不要混用。最好整篇文章也不混用。

- **摘要用第三人称比较好**（有些老牌国际杂志有这个要求）。

摘要 续

❖ 摘要 → “This letter reports the finding of a new chaotic attractor in a simple three-dimensional autonomous system, which connects the Lorenz attractor and the Chen attractor and represents the transition from one to the other.”

❖ 注意：

《摘要》是供出版社、图书馆、信息库检索用的，通常要单独刊登；因此，要自我完备，尽量不要使用数学公式、数学符号、方程序号、引文序号、图表数据等等。

关键词

❖ “**Scientific Citation Index (SCI)** provides access to current and retrospective bibliographic information, author abstracts, and cited references found in 3,700 of the world's leading scholarly science and technical journals covering more than 100 disciplines.”

❖ SCI 系统利用关键词来分类文献

❖ 读者利用关键词来搜索文章

❖ **建议：**

- 关键词应该是“关键”的词
- 关键词不全面可能导致检索遗漏和引用减少
- 关键词用**单数**：例如：写“attractor” 而不是“attractor**s**”（当然，chaos 是不可数的固有名词）

引言

- 引言应该全面、客观、准确地介绍问题的背景和历史发展，本文的动因，他人以及自己的主要成果和贡献。
- 不要抄袭其它文章（包括自己的文章）中的文句和段落。
- 对自己的贡献的评价要适中、不要过份。（把话留给审稿人和读者去说）

➢ “The new system is very important since it bridges the famous Lorenz system and Chen system.”

➢ → “The new system plays the role of bridging the Lorenz system and the Chen system.”

引言 续

(Draft) In 1963, Lorenz introduced a now-famous Lorenz system [1]. The Lorenz system has been extensively studied. For example, Smith [2] analyzed its dynamics and its circuit implementation was reported in [3, 4].

(Draft) In 1963, Lorenz introduced the now-famous Lorenz system [1]. The Lorenz system has been extensively studied. For example, Smith [2] analyzed its dynamics and its circuit implementation was reported in [3, 4].

提及 Lorenz 是可以的，因为他是发明者而且很著名。但为什么 Smith 就比文献[3,4]的作者们更重要以至你只提及前者名字却不提及后者呢？读者和后面的作者会认为你不公平。

引言 续

(Draft) In 1963, Lorenz introduced a now-famous Lorenz system [1]. The Lorenz system has been extensively studied. For example, Smith [2] analyzed its dynamics and its circuit implementation was reported in [3, 4].

→ In 1963, Lorenz introduced the now-famous Lorenz system [1]. The Lorenz system has been extensively studied. For example, its dynamics were analyzed in [2] with circuit implementation reported in [3, 4].

通常不可能列出所有文献作者的名字。因此，不妨都不条列。

引言 续

- 在引用其他文章和结果、特别是作比较时，不要（不必）直截了当、锋芒毕露地批评人家（除非你写一篇评论性的文章）。

- "The result of [9] is unfortunately wrong, because …"

→

- "The result of [9] seems questionable, because …"

- "The result of this paper is very significant, but that in [9] is absolutely trivial, because …"

→

- "The result of the present paper, as compared to those in [9], appears to be more significant, because …"

引言 续

- 避免胡乱引用文献

须明白为什么要引用文献，应尽量准确完整地引用必要和重要的参考文献。

不要跟着其他文章，别人引用什么你也引用什么，照抄照搬。

除了自己熟识的文献之外，如有可能的话把其他引文也找来过目一下，避免不恰当甚至是错误的引用。例如，有些文章可能已有勘误或者已经撤稿，就不要闹笑话去引用了。

段落

- 格式要统一

下面这些段落的标题和编号怎么样？

- Section 1 The New Chaotic System
  - Subsection 1.1 Background and Motivation
- Section 2. Analysis of the new system (1.1)
  - Subsection 2.1 Theoretical analysis on the system
  - Subsection 2.2 Simulation Results

段落 续

➢ 格式要统一

❖ Section 1 The New Chaotic System
- Subsection 1.1 Background and Motivation

❖ Section 2. Analysis of the new system (1.1)
- Subsection 2.1 Theoretical analysis on the system
- Subsection 2.2 Simulation Results

→

❖ Section 1 The New Chaotic System

❖ Section 2 Analysis of the New System
- Subsection 2.1 Theoretical analysis
- Subsection 2.2 Simulation results

段落 续

❖ 避免写冗长句子

下面这句话怎么样？

“In this section a new three-dimensional autonomous nonlinear dynamical system with only two quadratic terms but can generate a chaotic attractor bridging the gap between the Lorenz system and the Chen system which can be described by a system of ordinary different equations is introduced as follows.”

（这是一个长长的句子，语法并无错谬）

段落 续

❖ 其实关键句是：

“In this section a new three-dimensional autonomous nonlinear dynamical system with only two quadratic terms but can generate a chaotic attractor bridging the gap between the Lorenz system and the Chen system which can be described by a system of ordinary different equations is introduced as follows.”

段落 续

→

“In this section, **a new** three-dimensional autonomous nonlinear dynamical system **is introduced**. This system has only two quadratic terms but can generate a chaotic attractor bridging the gap between the Lorenz system and the Chen system. The system can be described by a set of ordinary different equations, as follows.”

段落 续

- 避免不必要的符号和定义

通常读者在阅读过程中会尽可能记住您给出的各种定义和公式中的符号，以便能继续阅读下文。不必要的东西多了，读者就会觉得很累，而且重要的东西反而会记不住。

- 避免太多太滥的方程号码：

通常只给后面引用到的公式和方程编号，不要每一个都编号、以至一篇小文章有几十个方程编号。

段落 续

❖ 避免太多太滥的缩写：

The new Chen system (CS) is a dual system (DS) to the Lorenz system (LS). In the following, the CS will be studied in more detail, against the LS, showing that the CS is more complex than the LS, therefore may be more useful than the LS in engineering applications such as secure communication (SC) and information encryption.

CS, DS, LS, SC … 太多，而且很相似

结论

- 不要简单地改写甚至重复《摘要》
- 总结本文的主要贡献（比引言详细一些），
  指出存在的不足，展望不远将来的研究工作。
- 相对独立，自成一体，便于别人引用。
- 像摘要一样，不要援引前文中出现过的方程号码、
  图表号码，不要重新讨论数学公式、给出定理
  补充证明、提供数据表之类。

致谢

感谢认真而又有实质性建议的匿名审稿人。

The authors sincerely thank the anonymous reviewers for their valuable comments that have led to the present improved version of the original manuscript.

感谢认真而又有实质性建议的朋友。

The authors also thank Prof. XYZ for his valuable comments and suggestions on the manuscript of the paper.

感谢有关科研基金的支持。

This research was supported by the NSF under grant 002011.

文献

下面这个《文献》草稿怎么样？

C Sparrow [1982] “The Lorenz Equations: Bifurcations, Chaos, and Strange Attractors”, Springer-Verlag.

Chen, G. and Ueta, T., “Yet another chaotic attractor,” Int. J. of Bifurcation and Chaos, 9, 1465-1466, 1999.

Ueta, T. & Chen, G. [2000] “Bifurcation analysis of Chen's attractor,” International Journal of Bifurcation and Chaos, vol. 10, pp. 1917-1931.

Guanrong Chen *et al*. From Chaos to Order: Methodologies, Perspectives and Applications (World Scientific, Singapore), 1998.

Vanecek, A. & Celikovsky, S. [1996] Control Systems: From Linear Analysis to Synthesis of Chaos. London: Prentice-Hall.

Sergej Celikovsky & G. Chen [2001] “On a Generalized Lorenz Canonical Form of Chaotic Systems,” preprint.

文献（毛病：格式不统一 ☹）

C. Sparrow [1982] The Lorenz Equations: Bifurcations, Chaos, and Strange Attractors, Springer-Verlag.

Chen, G. R. and Ueta, T. [1999] "Yet another chaotic attractor," Int. J. of Bifurcation and Chaos, 9, 1465-1466.

Ueta, T. & Chen, G. [2000] "Bifurcation analysis of Chen's attractor," International Journal of Bifurcation and Chaos, vol. 10, pp. 1917-1931.

Guanrong Chen *et al.* From Chaos to Order: Methodologies, Perspectives and Applications (World Scientific, Singapore), 1998.

Vanecek, A. & Celikovsky, S. [1996] "Control Systems: From Linear Analysis to Synthesis of Chaos," London: Prentice-Hall.

Sergej Celikovsky & G. Chen [2001] "On a Generalized Lorenz Canonical Form of Chaotic Systems," preprint.

标注了各种颜色的地方都有毛病！

文献(毛病：格式不统一 ☹ 1/3)

C. Sparrow [1982] The Lorenz Equations: Bifurcations, Chaos, and Strange Attractors, Springer-Verlag.

Chen, G. R. and Ueta, T., "Yet another chaotic attractor," Int. J. of Bifurcation and Chaos, 9, 1465-1466, 1999.

Ueta, T. & Chen, G. [2000] "Bifurcation analysis of Chen's attractor," International Journal of Bifurcation and Chaos, vol. 10, pp. 1917-1931.

Guanrong Chen *et al.* From Chaos to Order: Methodologies, Perspectives and Applications (World Scientific, Singapore), 1998.

Vanecek, A. & Celikovsky, S. [1996] "Control Systems: From Linear Analysis to Synthesis of Chaos," London: Prentice-Hall.

Sergej Celikovsky & G. Chen [2001] "On a Generalized Lorenz Canonical Form of Chaotic Systems," preprint.

G. Chen & X. Dong [1998]

--- 只有两个人的话，不要用"等人"

文献(毛病：格式不统一 ☹ 2/3)

Sparrow, C. [1982] The Lorenz Equations: Bifurcations, Chaos, and Strange Attractors, Springer-Verlag.

Chen, G. R. and Ueta, T., "Yet another chaotic attractor," Int. J. of Bifurcation and Chaos, 9, 1465-1466, 1999.

Ueta, T. & Chen, G. [2000] "Bifurcation analysis of Chen's attractor," International Journal of Bifurcation and Chaos, vol. 10, pp. 1917-1931.

Chen, G. & Dong, X. From Chaos to Order: Methodologies, Perspectives and Applications (World Scientific, Singapore), 1998.

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Celikovsky, S. & Chen, G. [2001] "On a Generalized Lorenz Canonical Form of Chaotic Systems," preprint.

文献(毛病：格式不统一 ☹ 3/3)

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- 不要把文献从各种杂志抄过来后简单地堆放在一起。
- 不要简单地剪+贴。
- 要统一格式。
- 要使用你打算投稿的那个杂志的格式。

- 文献的多少要恰当：不要漏掉重要和必要的文献，但又不要罗列多余的、特别是你自己的但关系不大的文章。
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文献 (统一格式之后 ☺)

Sparrow, C. [1982] The Lorenz Equations: Bifurcations, Chaos, and Strange Attractors (Springer-Verlag, New York).

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附录

附录通常可以放一些比较长的引理和定理的证明。

这样会方便读者顺利地阅读文章的全文，只在有必要时才去检查这些证明。

附录也可以放图表、数据、Symbolic 公式等。

结局 …（作个简单交待）

- 我们的稿件后来怎么啦？

  “A new chaotic attractor coined”

- 文章最后变成一篇 3 页纸的 Letter

- 我们一个月后就收到了审稿结果：审稿人评论说：

  “very well written”

  文章立即被接收，并且在不到一年便出版面世 。

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A NEW CHAOTIC ATTRACTOR COINED

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This letter reports the finding of a new chaotic attractor in a simple three-dimensional autonomous system, which connects the Lorenz attractor and Chen's attractor and represents the transition from one to the other.

Keywords: Chaos; Chen's attractor; Lorenz attractor.

1. Introduction

短文章可以有很高引用率

Guanrong Chen

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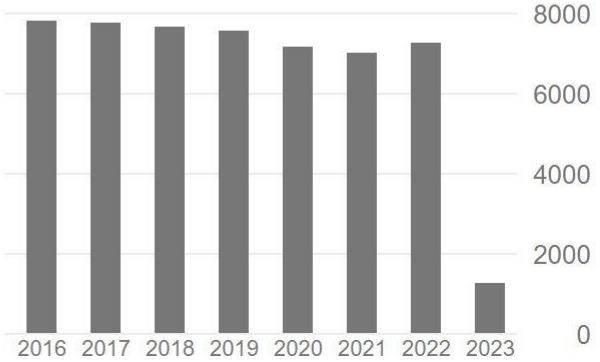

“短好”题目

当然，我也有不少很长的文章 ☺

结语

- 要舍得花时间写作！“文章千古事，得失寸心知”
- 审稿人会觉得对他来说很不公平 --- 他会觉得你只花了一天时间来写一篇文章，而他却要花一周时间去为你审查、推敲、修改、评论 --- “作者自己不认真写，却要我去认真审？最后文章出来了是我的？”
- 因此，他很可能随便找个理由给你退稿算了。
- 或者，由于你写得不好，他没有读懂，为了保险起见，他还是选择 “退稿了事”（ 哇，好冤枉！）
- 其实，写作是研究工作很重要的一部分：写作的过程中你往往会发现错谬、遗漏、甚至连自己也说不清的地方，从而会回头再把研究工作本身做得更好。

功夫在詩外

Thank You ! ☺