



上海交通大学

SHANGHAI JIAO TONG UNIVERSITY



研究生院英语教改试点

研究生学位课

# 航空航天学术英语

*Academic English for Aerospace Graduates*

## Lecture 3

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# Last week Homework

- 1 Explain your **manuscript title** in 5 min on next class
  - Assign 4 students from different disciplines to present and 6 students to question
  - A video camera will record everyone's presentation and replay it on class with a Q & A process.
- 2 Modify the original Aerospace AWL
  - Delete with sufficient reasons
  - Add 10+ most frequently
  - Remark with explanations



# Lecture Contents

## 1. Curriculum Introduction

## 2. Title (nature summary)

- Title drafting skills
- Key words collection
- MS Word utilization

## 3. Abstract

- Importance, Method, and Wording
- Abstract Appreciation (Good/Bad)
- Notification of Applied/Practical Research, Applied Basic Research, & Basic Research

## 4. Conference Culture

- Preparation – Invitation, Registration, Visa
- Travel – Accommodation, Venue, Transportation



**ZXQ**

*Wk 2~5*



# Paper Type Classification

- Paper type
  - **Review:** normally an invited written by an outstanding scholar on particular topic with over 20 pages
  - **Article:** an in-depth study with about 15 pages
  - **Letter: (Communications):** Normally a latest/insufficient fast-tracked research outcome within 6 pages
- Academic publishing
  - **Journals:** peer reviewed
  - **Transactions:** journals in a more specified subject
  - **Professional Magazines:** read casually
  - **Proceedings:** for academic conferences
- Conference Paper: w/ or wo a proceeding
  - **Poster**
  - **Session presentation**
  - **Plenary invited presentation**



# What is an Abstract?

- ⊙ Abstract **by Wikipedia**: An abstract is a **brief summary** of a research article, thesis, review, conference proceeding or any in-depth analysis of a particular subject or discipline, and is often used to help the reader quickly ascertain the paper's purpose.
- ⊙ An abstract is a **stand-alone statement** that briefly conveys the **essential information** of a paper, article, document or book; presents the objective, methods, results, and conclusions of a research project; has a brief, non-repetitive style.
- ⊙ Although an abstract appears as the first section of a paper, it should be **written last**. You need to have completed all other sections before you can select and summarize the essential information from those sections.
- ⊙ **Many publications have a required style for abstracts. The "Guidelines for Authors"** provided by the publisher will provide specific instructions.



# What goes in an Abstract?

- ① **In doing any research**, a researcher has an objective, uses methods, obtains results, and draws conclusions.
- ② **In writing the paper to describe the research**, an author might discuss background information, review relevant literature, and detail procedures and methodologies.
- ③ **However, an abstract of the paper** should:
  - describe the objective, methods, results, and conclusions;
  - omit background information, a literature review, and detailed description of methods;
  - avoid reference to other literatures.



# What is the style of an abstract?

- A scientific abstract summarizes your research article in a **concise, clearly** written way that informs readers about the article's content.
  - Readers do not expect the abstract to have the same sentence structure flow of a paper. Rather, the abstract's wording should be **very direct**.
  - Researchers use abstracts to determine whether a paper is relevant to their work and/or decide which papers to read. Because of the need for **self-contained compactness**, an abstract must convey the essential results of a paper.
  - For academic conferences, participants only receive copies of the abstracts in proceedings. When readers search through electronic databases for articles, the abstract is usually the **sole part of the paper** that they see without cost.



# How to Write a Scientific Abstract

## Part I: Preparations

- **Complete your research paper.** Authors usually write their abstracts after they have finished their research papers so that the abstract contains the major points of the article. If you need an abstract for a conference paper proposal before your paper is completely finished, be sure to have **a draft or outline** form of the paper from which you can create your abstract.
- **Read your research paper completely.** Highlight or underline the important points and copy and paste them into a separate document. After you finish reading your paper, review your **underlined material and select sentences** that help explain the research topic, research question, methods, results, and conclusion. Retain this material for your abstract.
- **Identify keywords.** Remember that online databases have keyword search engines for finding abstracts. Note relevant keywords that will **help researchers find your paper**. Set these aside for use in your abstract.





# How to Write a Scientific Abstract

## Part II: Structure

- **Explain the background of your study.** Using the material and keywords set aside from your paper as the basis, **write 1-3 introduction sentences** that explain the research topic, purpose of the study, and research question(s).
- **Share your research methods.** The second-longest section of the abstract, your methods section should explain in **2-3 sentences** how you conducted your study and what exactly you did.
- **Demonstrate your results.** Write **1-2 sentences** describing the results/findings of your study.
- **Conclude with the main point and impact of your research.** In **1-2 sentences**, iterate your overall summary of the project and its theoretical and/or practical impact on the relevant field(s) of study.



# How to Write a Scientific Abstract

## Part III: Check

- **Read your abstract aloud and check content accuracy and flow.** Your abstract should be short and concise but also flow smoothly.
- **Proofread for correct grammar, spelling, and punctuation.** Consider printing out your abstract and editing it with a pencil or pen. Having your work **in print** versus on your computer screen can help you catch additional mistakes and envision how your abstract will appear in printed mediums.
- **Complete a word count.** Make sure that your abstract is not too long or excessively short.
- **Share your abstract with a friend or colleague.** Having another person review your abstract will ensure that your abstract **makes sense** to potential readers.



# Expressions Avoiding

- ⊙ Replace “New/Novel” by concentrated academic wording



# Abstract Appreciation

## Quantitative Analysis to the Impacts of IMU Quality in GPSINS Deep Integration

This paper quantitatively assesses the negative effects of the inertial aiding information from different grades of INS based on a mathematical model of GPS receiver tracking loop with INS aiding. Results show that the largest maneuver-independent velocity error caused by the error sources of MEMS IMU is less than 0.1 m/s, and less than 0.05 m/s for the case of tactical IMU during the typical GPS update interval (i.e. 1 sec). The consequent carrier phase tracking error in the typical tracking loop is below 1.2 degree for MEMS IMU case and 0.8 degree for the tactical IMU case, which are much less than the receiver inherent errors. Conclusions can be reached that even the low-end MEMS IMU has the ability of aiding the receiver signal tracking. The tactical grade IMU can provide higher quality aiding information and has potential for the open loop tracking of GPS.



# Abstract Appreciation

## **A novel joint navigation state error discriminator based on iterative maximum likelihood estimation**

To break through the limitations of traditional discriminator used in vector tracking loop, this paper presents an iterative maximum likelihood estimation (IMLE) method for extracting navigation state errors from multi-satellite signals. The IMLE method takes into account both the computational cost and estimation accuracy. The gradient vector and Hessian matrix of MLE cost function are derived accordingly. Based on the properties of MLE cost function, gradient vector and Hessian matrix, the characteristics of discriminator are analyzed. The effectiveness of IMLE is verified by the Monte Carlo simulation.



# Homework

- ① Identify **a good and a bad** abstract in your opinion from the open access database.
- ② **Rewrite** the above bad abstract to make it seem better.
- ③ Explain the **DRAFT Abstract** of your manuscript in 5 min on next class
  - Assign 4 students from different disciplines to present and 6 students to question
  - A video camera will record everyone's presentation and replay it on class with a Q & A process.