

Good Scientific Practices

- ❑ Scientific Misconduct
- ❑ Plagiarism
- ❑ Research Ethics
- ❑ Lab Standards

Society demands for the integrity of scientists and the science system

- The conduct of science rests on basic principles valid in all countries and in all scientific disciplines.
- The first among these is honesty towards oneself and towards others. Honesty is both an ethical principle and the basis for the rules ... of good scientific practice.
- Conveying the principle of honesty to students and to young scientists and scholars is one of the principle missions of universities.

Why has GSP gained such an importance?

- competition for positions in science has become more harsh
- the role of publications in scientific careers is crucial
- size of working groups has grown sharply
- time demands on supervisors have increased
- work processes in many areas of science have expanded enormously and become much more specialised
- heads of institutes or labs can barely afford the systematic supervision and monitoring of next generation scientists

Why has GSP gained such an importance?

Universities and independent research institutes shall formulate rules of good scientific practice in a discussion and decision process involving their academic members. These rules shall be made known to, and shall be binding for, all members of each institution. They shall be a constituent part of teaching curricula and of the education of young scientists and scholars.

What is scientific misconduct?

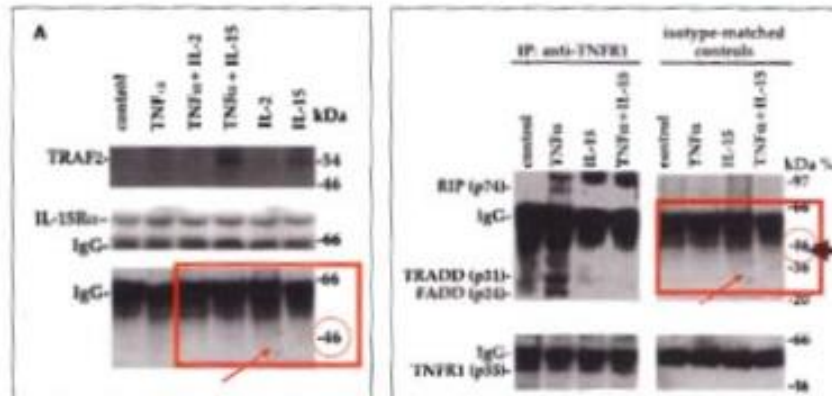
- Misrepresentation of data and facts
- Violation of intellectual property rights
- Obstruction of research work of third parties
- Publication Process and Authorship
- Conflicts of Interest, Scientific Cooperation
- Research on Humans, Clinical Studies
- Animal Research

What is scientific misconduct?

- Misrepresentation of data and facts
 - Invention of data or experimental facts
 - Faking of data or experimental facts:
 - selection of desired and suppression of unwanted data
 - manipulation of data in figures (photos) or graphs
 - information on experimental replications, design & statistics
 - Incorrect data in applications for fellowships, positions or research grants, including wrong information on the status of personal publications

Example:

Reduplication of blot data in two different papers with different labeling and interpretation (S. Bulfone-Paus, Leibniz Center for Medicine and Biosciences, Borstel, Germany)



What is scientific misconduct?

- Violation of intellectual property rights

- Theft of data, ideas, hypotheses & concepts from someone else, without his/her knowledge and consent and without mentioning the source(s)

- plagiarism

- exploitation of information obtained as reviewer

- acceptance of unjustified authorship or co-authorship

- falsification of the content of a paper

- unauthorized publication or giving access to third parties of a paper or report with yet unpublished information

- claiming of the co-authorship of someone without his/her consent

What is scientific misconduct?

- Violation of intellectual property rights

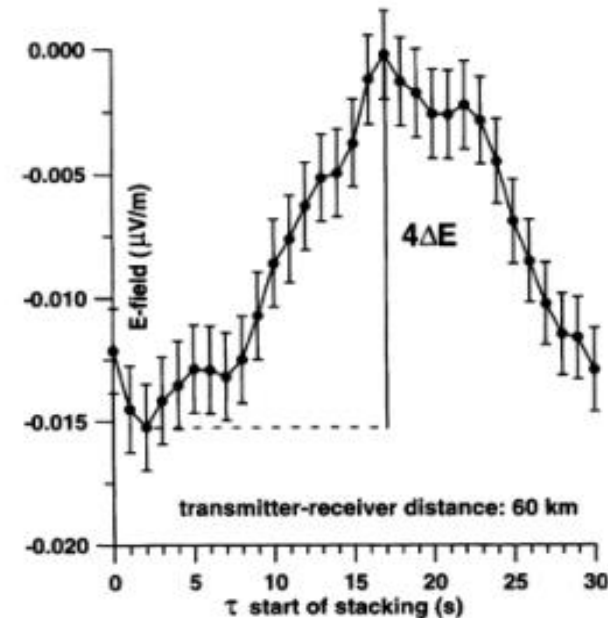
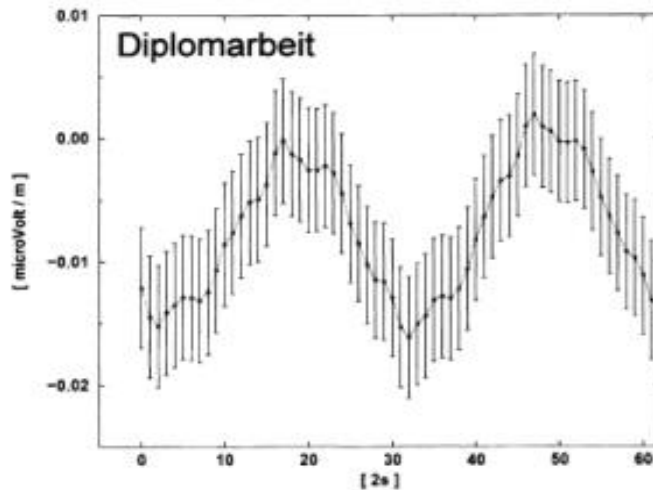


FIG. 4. Stacked differences as a function of the start of stacking τ for a transmitter-receiver distance of 60 km. The difference $4\Delta E$ between the maximum and minimum yields the desired signal ΔU , which is $\Delta U = (\Delta E/4)$.

Stoll –Bahr-2000

Data stolen from a diploma thesis without notice of the student!

Dr. Sajjad Ali, Assistant Professor, Entomology, UCA, UOS

What is scientific misconduct?

- Obstruction of research work of third parties
 - Sabotage of research work, including damaging, destroying or manipulating of experimental facilities, documents, materials, data files etc.
 - Deletion of primary data, which are required to be stored according to the rules of GSP

What is scientific misconduct?

- Publication Process and Authorship

A scientific authorship and publication requires ...

- 1) a substantial contribution made to the concept and planning of experiments/studies, and to the recording, analysis and interpretation of data
- 2) a significant participation in preparing the draft paper or in the critical review of the paper
- 3) a full consent on the final version of the paper by all contributors including agreement on the list of authors

All three requirements must be fulfilled to justify authorship on a scientific publication and the publication itself!

What is scientific misconduct?

- Publication Process and Authorship

A scientific authorship is **NOT** justified just by ...

- a mere provision of funding or technical/scientific facilities
- a mere recording of raw data
- a role as the head of the institution („honor authorships“)

Specific roles of authors according to placement in the list of authors:

- **First author:** main person conducting the study and writing the manuscript (mostly also acting as „corresponding author“)
- **Last author:** „senior“ scientist of the study, mostly the supervisor or group leader (must fulfill the requirements for authorship, see above!)

Further rules:

- **Shared first authorship:** placement of two authors on first position if both have equally contributed

What is scientific misconduct?

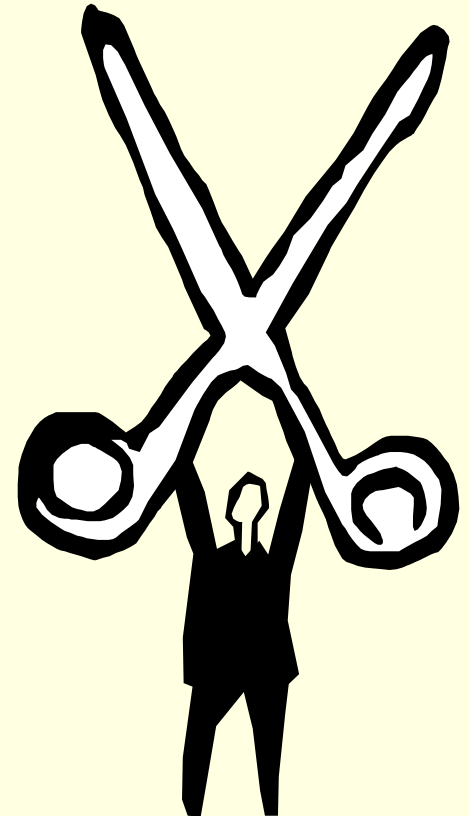
- Conflicts of Interest, Scientific Cooperation

Conflicts may arise due to.....

- reporting on results from studies funded by industries, governmental authorities or NGOs (→ biased data interpretation, independence of research, interest in follow-up funding)
- hiring and/or promoting scientific staff from such institutions
- reviewing of grant applications, publications from competitors
- bias due to personal relationships when promoting, hiring or evaluating supervised staff or reviewing proposals or papers

Plagiarism

- Plagiarism: Using someone else's words or thoughts without proper referencing
- Why not plagiarize?
 - Plagiarism is stealing
 - Plagiarism is lying
 - Plagiarism is cheating
 - You will get caught ... eventually



Two types of plagiarism:

■ Intentional

- Copying a friend's work
- Buying or borrowing papers
- Cutting and pasting blocks of text from electronic sources without documenting
- Web publishing without permissions of creators



■ Unintentional

- Careless paraphrasing
- Poor documentation
- Quoting excessively
- Failure to use your own "voice"

Plagiarism

- Two ways of plagiarism
 - Word-for-word: Quoting directly from another work without enclosing the quote in a “quotation marks” and providing a reference
 - Paraphrasing: Using a source without providing a reference

The HEC's ethics policy is available on their web site

Quotations

- Quotations require “quotation marks” ***and*** a reference to the original source
- If you don’t provide a reference, it is still plagiarism, even if you change the words
- If you don’t quote correctly or you don’t provide a reference, it is still plagiarism, even if the original source has given you permission

Paraphrasing

- Paraphrase by reading the material, setting the material aside, and rewriting it in your own words
- Paraphrasing still needs a reference, or else it is plagiarism

Plagiarism Test

- This plagiarism test is adapted from Indiana University Bloomington www.indiana.edu/~istd/plagiarism_test.html
- Specify if the writing on the following pages is plagiarism. If so, is it word-for-word plagiarism or paraphrasing plagiarism?

Plagiarism Question 1

- **Original Source Material:** The concept of *systems* is really quite simple. The basic idea is that a system has parts that fit together to make a whole; but where it gets complicated - and interesting - is how those parts are connected or related to each other.
- **Student Version:** Systems, including both business systems, and educational systems, are actually very simple. The main idea is that a system has parts that fit together to make a whole. What is interesting is how those parts are connected together.

Plagiarism Answer 1: Word-for-word

- **Original Source Material:** The concept of *systems* is really quite simple. The basic idea is that a **system has parts that fit together to make a whole**; but where it gets complicated - and interesting - is **how those parts are connected** or related to each other.
- **Student Version:** Systems, including both business systems, and educational systems, are actually very simple. The main idea is that a **system has parts that fit together to make a whole**. What is interesting is **how those parts are connected** together.

Plagiarism Question 2

- **Original Source Material:** Given similarities between software design and instructional design, we argue that rapid prototyping is a viable method for instructional design, especially for computer-based instruction.
- **Student Version:** Rapid prototyping could be an advantageous methodology for developing innovative computer-based instruction (Tripp & Bichelmeyer, 1990).

Plagiarism Answer 2: Not plagiarism

- **Original Source Material:** Given similarities between software design and instructional design, we argue that rapid prototyping is a viable method for instructional design, especially for computer-based instruction.
- **Student Version:** Rapid prototyping could be an advantageous methodology for developing innovative computer-based instruction (Tripp & Bichelmeyer, 1990).

This is not plagiarism because the student paraphrased and included a proper reference.

Plagiarism Question 3

- **Original Source Material:** The study of learning derives from essentially two sources. Because learning involves the acquisition of knowledge, the first concerns the nature of knowledge and how we come to know things.
- **Student Version:** The study of learning derives from essentially two sources. The first concerns the nature of knowledge and how we come to know things [23].

Plagiarism Answer 3: Word-for-word

- **Original Source Material:** The study of learning derives from essentially two sources. Because learning involves the acquisition of knowledge, the first concerns the nature of knowledge and how we come to know things.
- **Student Version:** The study of learning derives from essentially two sources. The first concerns the nature of knowledge and how we come to know things [23].

The student is correct to give a reference, but still plagiarizes due to the lack of quotation marks.

Plagiarism Question 4

- **Original Source Material:** The tools available today for creating learning materials are much more powerful than those of a few years ago. Soon teachers will be able to use computer technology to produce their own materials. All it takes is time, know-how, and some funds.
- **Student Version:** Computers are so powerful that educators and students are now able to produce their own multimedia learning materials. They just need to take the time to learn to use the related technologies.

Plagiarism Answer 4: Paraphrasing

- **Original Source Material:** The tools available today for creating learning materials are much more powerful than those of a few years ago. Soon teachers will be able to use computer technology to produce their own materials. All it takes is time, know-how, and some funds.
- **Student Version:** Computers are so powerful that educators and students are now able to produce their own multimedia learning materials. They just need to take the time to learn to use the related technologies.
- The student did not properly reference the source.

Excuses: Why plagiarize?



Real life consequences: Why not Plagiarize?

- Damaged the reputation of two prominent historians, Stephen Ambrose and Doris Kearns Goodwin,
 - Kearns left television position and stepped down as Pulitzer Prize judge for “lifting” 50 passages for her 1987 book *The Fitzgeralds and the Kennedys* (Lewis)
- Senator Joseph Biden dropped his 1987 campaign for the Democratic presidential nomination. (Sabato)
 - Copied in law school and borrowed from campaign speeches of Robert Kennedy
- Boston Globe journalist Mike Barnicle forced to resign for plagiarism in his columns (“Boston Columnist . . .”)
 - [CNN Article](#) AP. 26 Nov. 2001
 - [Channel One Article](#) AP. 27 Nov. 2002

...continued

■ **Local Examples:**

HEC black-listed;

- **Dr. Mansoor Alam Ansari** Head of Computer Department, Federal Urdu University
- **Dr. Niaz Ahmed Memon** Chairman Deptt. of Computer System Engineering QUEST, Nawabshah

Conclusion

- Use the resources that are available
- Avoid plagiarism like the plague
- When in doubt, err on the side of too many references rather than too few
- When in doubt, check with your professor or at www.turnitin.com identifies plagiarism



"Class, who can tell me what Mr. Billingsley did wrong, in addition to majoring in this discipline."