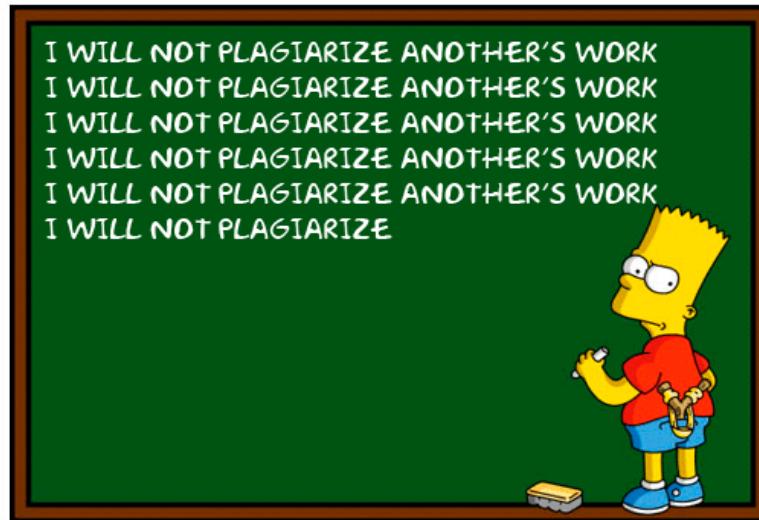


# Publication and Dissertation:

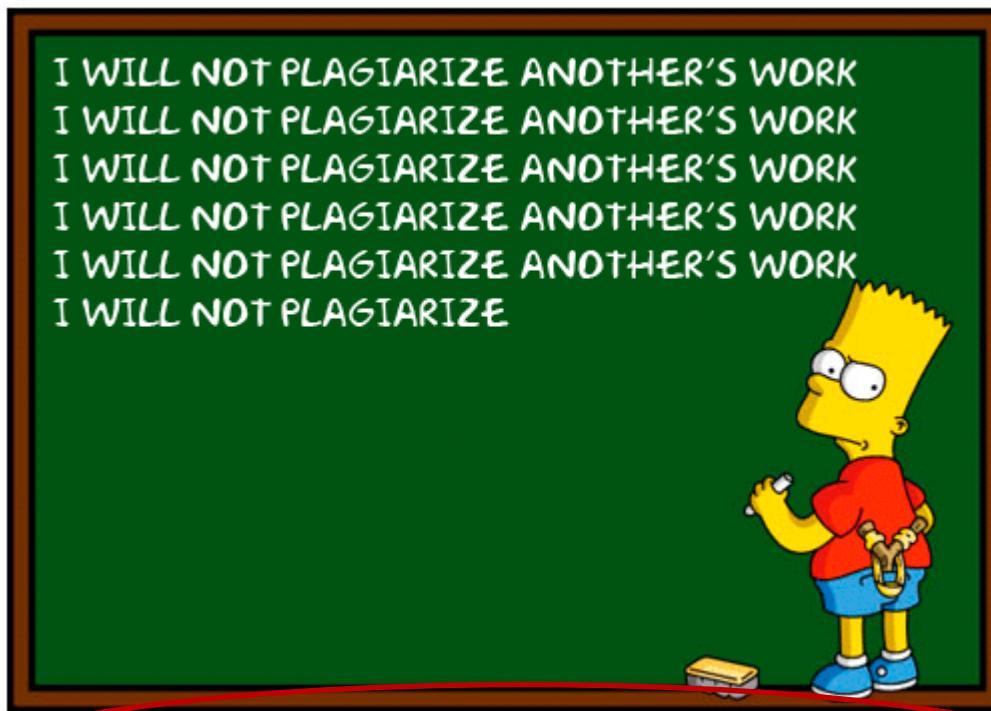
## How to avoid scientific malpractice

Prof. Dr. Heinz Kalt | Ombudsman for Safeguarding Good Scientific Practice at KIT



# Publication and Dissertation:

## How to avoid scientific malpractice



<http://blogs.fit.edu/wp-content/uploads/2012/04/bart-simpson-plagiarize.png>  
27.02.2015

# Publication and Dissertation:

## How to avoid scientific malpractice

- Principles of Scientific Integrity
- Storage and Right of Usage of Data
- Scientific Publishing and Authorship
- Plagiarism
- How to Cite
- Dissertation and other Qualification Theses

## ■ *What is Scientific Integrity?*

- *self-commitment of scientists to honesty and respect*

## ■ *Why do we need rules regulating scientific integrity?*

- they are an indispensable precondition for ***trustable science***
- they enhance the ***acceptance by the public***
- they guide our commitment to responsible handling of the ***freedom of research*** granted in the German constitution (Grundgesetz Art. 5 Abs. (3))

# Principles of Scientific Integrity

- KIT has set up ***statutes for safeguarding good research practice*** [1]
  - are based on the new DFG-Kodex [2], which has been worked out and issued by the scientific community of Germany
  - support professional self-regulation and guide science at KIT
  - are supplemented by ethical guidelines at KIT, guidelines on compliance and corruption, guidelines on data privacy + data security, regulations on security of intellectual property (IP) and patent laws, study and examination regulations (SPO), regulations for doctoral exams (Promotionsordnung), bylaws for equal opportunities, guidelines for good supervision ...
- ***KIT Statutes [1] and DFG-Kodex [2] are legally binding for all persons performing scientific work at KIT***

[1] <https://www.kit.edu/research/scientific-integrity.php>

<https://www.kit.edu/forschen/gute-wissenschaftliche-praxis.php>

[2] <https://wissenschaftliche-integritae.de>

- ***General principles of good scientific practice*** are in particular:
  - to observe professional standards,
  - to document results,
  - to consequently question one's own findings,
  - to practice strict honesty with regard to contributions of partners, competitors and predecessors
  - open scientific discourse is essential to good scientific practice
  - originality and quality have priority over quantity

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# Storage and Right of Usage of Data

You performed extensive numerical simulations to reproduce experimental research data

The results have been published recently

„Everything is published! Now I can **delete** the tons of **original** simulation **data** and its documentation to make room for new simulations“

**Question:** *Is this allowed?*

**Answer:** *In general no! But, exceptions might exist*

## Dokumentation:

- ***any(!) information*** (data, methods, evaluation procedures, citations, source codes ...) relevant for achieving the research results shall be ***documented in a comprehensible way*** such that the results can be checked and evaluated by others
  
- documentation and research results ***must not be manipulated*** and shall be secured against manipulation in the best possible way

## Archiving:

- **Research data** (measured data, software codes, simulation results, analytic calculation, collections, surveys and questionnaires, cell cultures, material samples, archaeological finds ...) **shall be stored** in an adequate way as a general rule **for ten years**
- archival storage shall be done using durable and secure carriers at the **institute**, where the data have been generated, at other reliable institutions (in particular **archives** or **libraries**) or in recognized **repositories**, e.g., KITopen or RADAR4KIT
- **storage times can be shortened** in well-founded cases
- the heads of **scientific units are responsible** and issue corresponding rules



# Storage and Right of Usage of Data

You are a doctoral candidate and have collected research data in a project together with an external partner (e.g., a company)

You want to use the data you collected in your dissertation

The partner institution wants to prohibit this use via a contract

***First question: Is this allowed?***

***Second question: Would the answer be different when it is an internal project and your head of institute wants to prohibit the use of the data?***

***Answer: It is not allowed in both cases***, but there could be a ***delayed publication*** of the thesis until ***intellectual property rights*** have been secured

# Storage and Right of Usage of Data

- ***As a rule, researchers who have collected research data are entitled to use them.*** But, right of usage and publication can be restricted by ***statutory or contractual regulations***
- ***Freedom of research can be restricted by regulatory framework***
  - copyright (Urheberrecht), data safety, employment contracts and laws
  - Code of Conduct, underwriting guidelines, ethical guidelines
  - contracts with partners on right of usage and exploitation of data
  - endowment contract
- ***Usage of data collected by oneself in theses works cannot be prohibited***
- ***You should conclude agreements on data usage in time when different institutions are involved or in case a researcher leaves the institute***



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# Publications and Authorship

- Scientific publications shall
  - completely and reproducibly describe the results,
  - completely and correctly document own preceding work and preceding work of others by quotes and references, and
  - repeat previously published results in a clearly marked form and to the extent required for understanding the context only.

# Publications and Authorship

You plan a publication of your scientific result in a journal or on a conference

**Question: Who should be coauthor of this publication?**

- The technician who helped you to set-up a server cluster?
- Dr. XY who provided an algorithm package adapted to your problem?
- The bachelor student who implemented a complex source code?

**Answer: A genuine scientifically relevant contribution is required**

# Publications and Authorship

- Authors of an original scientific publication shall be all those, and only those, who made a ***genuine and traceable contribution*** by participating in a ***scientifically relevant*** way, e.g., in
  - the development or ***conception*** of the research study
  - the ***generation, collection and supply of data, soft ware and sources***
  - ***analysis*** and ***interpretation*** of the data and sources and the deduced conclusions
  - ***preparation of the manuscript.***
- All authors have to give ***consent to the publication***, thereby ***assuming responsibility*** for it. The authors shall jointly ensure that no co-author was ignored. Consent on authorship and content should be achieved at the earliest possible stage.

# Publications and Authorship

- A so-called "***honorary authorship*** *is inadmissible*.
- With this definition of authorship, other contributions, including significant ones, such as
  - a merely organizational responsibility for obtaining the funds for the research;
  - supply of standard investigation materials;
  - instruction of staff with respect to standard methods;
  - technical support of data collection;
  - technical support, e.g. supply of instruments and test animals;
  - regular supply of data sets;
  - reading of the manuscript without any substantial contribution to the content;
  - direction of an institution or organizational unit, at which the publication was written

***are not by themselves regarded sufficient to justify authorship.*** Such support may be acknowledged in footnotes or in the preface.

# Publications and Authorship

- fraud, deception, manipulation and deliberate misinterpretation of scientific data or facts
- misuse of intellectual property (plagiarism, theft of ideas, unjustified claim or rejection of coauthorship, ignorance of relevant preceding work by others, delay of publication, unauthorized publication)
- including coauthors without their consent
- elimination of original data

***are scientific misconduct***  
***(in case of willful intent or willful negligence)***

## ***Predatory Publishers, Fake Conferences etc.***

- Authors carefully chose the publication medium – considering its quality and visibility in the respective scientific area
- You must check the integrity of a publication medium which is new or unknown to you
- An important criterion for the decision is whether rules of good scientific praxis have been established
  
- Publication with predatory publishers
  - Is explicitly not supported by KIT
  - Does discredit the reputation of the authors (in the scientific community, with funding agencies ...)
  - Your valuable scientific data cannot be published again with a different serious publisher
  - Often erroneous assessment by the author

## Predatory Publishers, Fake Conferences etc.

### ■ Preventive measures

- **Critically examine any invitation to a conference or publication** (who did invite you, is it a professional invitation, have you been asked to suggest your own topic or subject area, does a serious review process exist, are program/evaluation committees named, do you or your colleagues know the journal/conference, are fees declared in a transparent way ....)
- Open Access Publishing: see advisory service of KIT-Bibliothek
- List of Open Access Journals (<https://doaj.org/>)
- <http://thinkchecksubmit.org/check/> <https://beallslist.weebly.com/>
- <https://os.helmholtz.de/open-science-in-der-helmholtz-gemeinschaft/open-access-der-goldene-weg/faqs-zum-thema-predatory-publishing/>
- <https://libguides.caltech.edu/c.php?g=512665&p=3503029>
- [https://www.fz-juelich.de/zb/EN/Expertise/open\\_access/predatory\\_publishers/predatory\\_publishers\\_artikel.html](https://www.fz-juelich.de/zb/EN/Expertise/open_access/predatory_publishers/predatory_publishers_artikel.html)

### ■ Measures following publication

- Omit listing of this publication in CVs, Web-pages, KITopen ....
- Request withdrawal of publication by publisher (often not possible anymore)



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## Handling of plagiarism

- Plagiarism software and portals (GuttenPlag, SchavanPlag et al. ....)

vs

- „Ein Computer kann nicht die Entscheidung darüber treffen, ob ein Plagiatstatbestand vorliegt oder nicht. Das müssen sachkundige Fachkollegen tun.“  
(J. Mukherjee, Uni-Päsident Univ. Giessen)

***plagiarism*** is the unauthorized use of text, illustrations etc. accompanied by the claim of authorship or the theft of ideas without suitable citation

this includes:

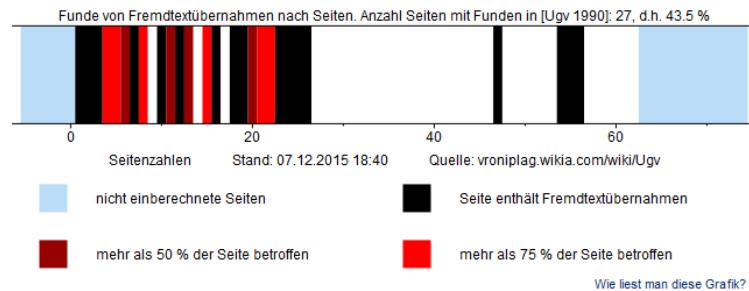
- ***intellectual theft***
- ***direct plagiarism***: “copy and paste” of text and illustrations without correct citation (even if source is given, but the text is reproduced without quotation)
- ***paraphrasing plagiarism*** (copying of ideas or results using different wording)
- ***plagiarism by translation***
- ***self-plagiarism***

# Plagiarism Software

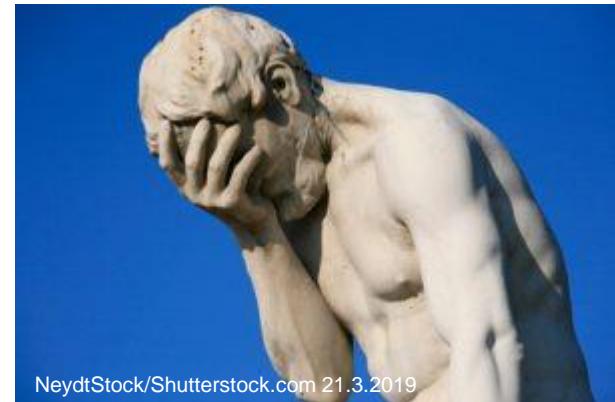
wikia ▾ Suche in VroniPlag Wiki...

## Eine kritische Auseinandersetzung mit der Dissertation von Dr. Ursula Gertrud von der Leyen: C-reaktives Protein als diagnostischer Parameter zur Erfassung eines Amnioninfektionssyndroms [sic] bei vorzeitigem Blasensprung und therapeutischem Entspannungsbad in der Geburtsvorbereitung

Dissertation zur Erlangung des Doktorgrades der Medizin der [Medizinischen Hochschule Hannover](#). Betreuer: PD Dr. Dr. Mahmoud Mesrogi, Erstgutachter: Prof. Dr. Axel Gehrke, Zweitgutachter: Prof. Dr. Henning Zeidler. Tag der mündlichen Prüfung: 15.03.1991. Publikation: Hannover 1990.



### Seiten



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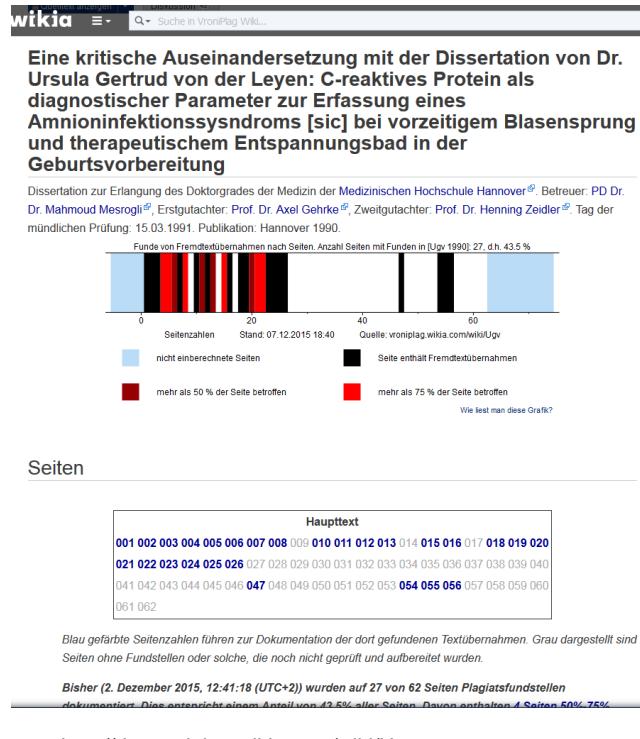
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Blau gefärbte Seitenzahlen führen zur Dokumentation der dort gefundenen Textübernahmen. Grau dargestellt sind Seiten ohne Fundstellen oder solche, die noch nicht geprüft und aufbereitet wurden.

<http://de.vroniplag.wikia.com/wiki/Ugv>

Bisher (2. Dezember 2015, 12:41:18 (UTC+2)) wurden auf 27 von 62 Seiten Plagiatsfundstellen dokumentiert. Dies entspricht einem Anteil von 43.5% aller Seiten. Davon enthalten 1 Seiten 50% - 75%

# Plagiarism Software



## Bewertung der Medizinischen Hochschule Hannover:

„Die Einhaltung der gültigen Regeln guter wissenschaftlicher Praxis hatte in dem zu prüfenden Fall höchste Priorität. Die GWP-Kommission kam zu dem Ergebnis, dass der überwiegende Teil der festgestellten Mängel in der Dissertation auf eine **handwerklich nicht saubere Arbeitsweise** zurückzuführen war. Dies beschränkt sich im Wesentlichen auf den Einleitungsteil der Arbeit. Im zentralen Ergebnisteil der Dissertation wurden keine Mängel festgestellt. Die festgestellten Verstöße waren in der ganz überwiegenden Anzahl als **nicht schwerwiegend** einzustufen. Zudem führte der unterschiedliche Charakter der Verstöße zur Bewertung, dass **keine systematische, rechtserhebliche Täuschungshandlung** vorliegt.“

**Prof. Dr. T. Werfel (Ombudsmann MHH, Pressemitteilung der MHH 09.03.2016)**

- „.... no systematic, legally relevant fraud ...“

# Plagiarism Software

- Plagiarism software is only a tool. It cannot make decisions whether a case of plagiarism applies. This decision has to be made by competent experts.
- There is no software for general purpose. Most programs give too many false positive or negative results.
- Policy of KIT is to trust its scientists in the first place. There is no general screening of thesis work. But use of plagiarism software is adequate in case of reasonable suspicion.
- A self-test of your own thesis or paper is in contradiction with the idea of good scientific practice
- for more info see also: website of Prof. Weber-Wulff  
<http://plagiat.htw-berlin.de/>

You have published several papers in high-ranking journals. Now you write your dissertation thesis.

You want to reuse parts of the papers word-for-word (since the wording is already perfect). You give the relevant citation of the paper at the begining of the respective chapter of the thesis.

## ■ ***Is this correct?***

***Only if you additionally***

- ***put everything in „quotes“ that is copied and pasted***
- ***refer to the coauthors that have contributed to this part of the text and in which manner they contributed***

- **self-plagiarism** is the publication of substantially similar scientific content of one's own without reference to the original publication
- e.g., copy and paste without marking by quotes of own published work (with co-authors) in one's thesis. The required originality of a thesis is not given in case of self-plagiarism
- e.g., multiple publication in the same or different journals.

*“There must be a significant component of new science for a paper to be publishable. The copying of large segments of text from previously published or in-press papers with only minor cosmetic changes is not acceptable and can lead to the rejection of papers.”* [Editorial note: OPTICS EXPRESS , Vol. 21, No. 3, p. 2848 (2013) and other OSA journals]



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# How to Cite

- **gsP:** The imperative to cite in scientific work is supposed to prohibit that scientists “**adorn oneself with borrowed plumes**”. Thus it is required to quote the **ideas** of others (vgl. OLG Hamm, 31. 3. 2004 - 5 U 144/0). This imperative **does not require manifestation of the idea in a work.**
- **UrhG:** Die urheberrechtliche Zitierpflicht erfordert das **Entleihen eines fremden Werkes für eigene Zwecke**. Es will den **Urheber schützen**. Urheberrechte können nicht übertragen werden, es können aber **Nutzungsrechte eingeräumt** werden. (**protection of the creator**)
- **Copyright:** protects the publisher who has aquired the rights. As a rule, **permission** has to be asked for if you want to use parts of a protected work. It is possible to waive Copyright (**Public Domain**). (**protection of the owner of rights**)
- **Creative Commons:** „Rights are waived“ does not mean that you do not have to obey a license. Caution!: Check conditions of the license!  
(Info: <http://open-educational-resources.de/bilder-unter-freier-lizenz-nutzen/>)



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Logo der Organisation Creative Commons



Beispiel für ein Foto unter der Lizenz CC-BY-SA 2.0 de. Bei der Weiternutzung sind anzugeben: der Name des Urhebers und die Lizenz samt einem URI/URL, also „Robin Müller, CC-BY-SA 2.0 de“.

[https://de.wikipedia.org/wiki/Creative\\_Commons](https://de.wikipedia.org/wiki/Creative_Commons)

# How to Cite

general rules:

- **You must mark content that is exploited literally or mentally (gsP)**
- Zitate (§51 UrhG): Zulässig ist die Vervielfältigung, Verbreitung und öffentliche Wiedergabe eines veröffentlichten Werkes zum Zweck des Zitats, sofern die Nutzung in ihrem Umfang durch den besonderen Zweck gerechtfertigt ist. Zulässig ist dies insbesondere, wenn einzelne Werke nach der Veröffentlichung **in ein selbständiges wissenschaftliches Werk zur Erläuterung des Inhalts aufgenommen werden ...**  
**(When creating an own scientific work, it is allowed to cite the work of others to illustrate or clarify the content)**
- Zitat bedeutet Entlehnung eines Werks oder Werkteils, um die eigene Argumentation zu untermauern. Erforderlich ist eine **innere Verbindung** zwischen der zitierten Stelle und den eigenen Gedanken des Zitierenden (BGH, 20.12.2007 -I ZR 42/05, TV-Total). Ein Zitat soll als **Beleg für die eigenen Gedanken und selbständigen Ausführungen** des Zitierenden dienen.  
**(Citation requires a direct connection between the quoted site and your own work. Citations are meant as evidence for the validity of your own ideas.)**

## general rules:

- You do not need to cite **common knowledge** of a scientific community.
  
- UrhG § 62 Änderungsverbot
  - (1) Soweit nach den Bestimmungen dieses Abschnitts die Benutzung eines Werkes zulässig ist, **dürfen Änderungen an dem Werk nicht vorgenommen werden**. § 39 gilt entsprechend.
  - (2) Soweit der Benutzungszweck es erfordert, sind Übersetzungen und solche Änderungen des Werkes zulässig, die nur **Auszüge** oder Übertragungen in eine andere Tonart oder Stimmlage darstellen.
  - (3) Bei Werken der bildenden Künste und Lichtbildwerken sind Übertragungen des Werkes in eine andere Größe und solche Änderungen zulässig, die das für die Vervielfältigung angewendete Verfahren
- **you are not allowed to modify the content of cited work**



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You write your dissertation thesis and want to include results, figures or ideas that are part of a master's thesis of a student supervised by you

***First question: Do you have to cite material taken from a (non-published) master's thesis?***

***Second question: Does the master's student have to indicate in his thesis important ideas which have been contributed by you?***

***Answer: Yes in both cases***

- thesis work has to be ***original*** and has to be composed ***autonomously***
  - original experimental design, critical analysis and evaluation of data, integration of results into a scientific context
  - ***utilization of previous work*** (own work, work of other authors, contributions of coworkers and supervised students...) and of ***scientific input/ideas*** by others ***only when marked sufficiently with citations and quotes***
  - ***originality of work is not warranted in case of excessive self-citations***
- ***research and citations***
  - any context that is used literally or analogously has to be clearly marked
- ***impacts have to be named***
  - funding sources, scholarships, economic benefits, external influences (contractor)

see also: <http://www.hochschulverband.de/cms1/pressemitteilung+M57957527988.html>

- “***Ghostwriting***” is massive fraud

- ***dual responsibility:***

- The responsibility for compliance with the basic rules of good scientific praxis lies primarily with the author of a scientific thesis. But also supervisors and/or examiners bear responsibility. Task of the supervisor is to inform and explain the rules of scientific conduct to the candidate before the start of the work. Supervisors and examiners also have the obligation to rigorously investigate doubts about compliance with good scientific praxis in relation with the thesis work.

see also: <http://www.hochschulverband.de/cms1/pressemitteilung+M57957527988.html>



# Scientific Integrity at KIT

## ■ *Ombudspersons:*

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### Prof. Dr. Horst Geckeis

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## ■ *Web-Page of the Ombudspersons at KIT*

<https://www.kit.edu/forschen/gute-wissenschaftliche-praxis.php>  
<https://www.kit.edu/research/scientific-integrity.php>