

Research Integrity at PSI

Information for doctoral students

PSI, Audimax

Monday Nov. 4, 2013

- Louis Tiefenauer, Consultant
Dr. rer. nat., MASAE
- Heinz Gäggeler, Ombudsperson
Prof. em., Dr. phil.nat., Dr.h.c.

PA :: Arbeiten am PSI - Mozilla Firefox

https://intranet.psi.ch/PA/ArbeitenAmPSICategory

Mitarbeitende / Kontakt
Personalbewegungen / Mutationen
Situations
Arbeiten am PSI
Arbeitszeit / Absenzen
Führung
Honorierung
Versicherungen / Vorsorge
Personalentwicklung
Beratung bei Problemen
Austritt
Praktikum / Externe
Alles auf einen Blick (A-Z)

Informationen über die Anstellungsbedingungen am PSI (allgemein und für Doktorierende)

Aufenthaltsbewilligung / Arbeitsbewilligung
Das Bundesamt für Migration regelt, unter welchen Bedingungen jemand in die Schweiz einreisen, hier leben und arbeiten darf

Chancengleichheit
Informationsstelle für alle Mitarbeitenden bei Fragen betreffend Chancengleichheit

Integrität in der Forschung
Wahrhaftigkeit, Offenheit, Selbstkritik und Fairness sind die Grundlagentheorien für die Glaubwürdigkeit und Akzeptanz der Wissenschaft.

Wir Forschende am PSI sind diesen Werten verpflichtet und halten uns an die daraus abgeleiteten Richtlinien.

- Information des Direktors
- Broschüre/Richtlinie
- Verfahrensordnung
- PhD Guideline**
- Homepage Research Integrity

Ombudsstelle/Vertrauensperson: Heinz Gäggeler, heinz.gaeggeler@psi.ch
Er steht den Forschenden bezüglich Fragen zur Integrität in der Forschung und zur guten wissenschaftlichen Praxis beratend, unterstützend und vermittelnd zur Verfügung und ist Ansprechperson für das Melden von vermuteten Interessenkonflikten sowie von eigenmächtigen Verhaltensweisen, welche Forschungsarbeiten behindern (whistle blowing). Weiterhin nimmt er sämtliche Anliegen bezüglich der Richtlinie „Integrität in der Forschung“ entgegen und wahrt dabei auf Wunsch die absolute Anonymität.

Darstellung als einzelne Seite: [IntegritaetInDerForschung](#)

Jugendliche Arbeitnehmende / Jugendschutz
Beim Einsatz von jugendlichen Arbeitnehmenden gibt es einiges zu beachten

Kompetenzen, Unterschriftsberechtigungen, Zuständigkeiten
Informationen zum Thema Datenschutz für Prozesse und Abläufe der Personalgeschäfte

Lehrtaetigkeit
Richtlinie zur Vergütung der Lehrtätigkeit an Hochschulen und Fachhochschulen von PSI-Mitarbeitenden

Lohnkonto Änderung
Hat sich Ihr Bankkonto oder Postkonto für die Lohnüberweisung geändert?

Start DE [Taskbar icons] 12:24

Guidelines content

- Research plan
- Experimental work
- Reporting
- *Ethical guidelines*
- Publication
- Duration
- Writing the thesis
- Exams
- After the thesis

- Ethical guidelines
Scientific integrity is one of the highest assets in academic research. Corresponding guidelines are available at PSI, based on international and national recommendations. You must consult these guidelines and consider them carefully in your daily work.

On being a scientist

Why you are scientist ?

What you are doing? (answer next slide)

How you do science?

Research Integrity (part of science ethics)

- Theories, responsibility, codices, meta-science, credits (bibliography, scientific career), impacts to society, risk management (early warning), etc.
- *Principles: how you should conduct* (normatives)



Avoid damage (respect rules): to persons, animals & environment (safety issues)

Create benefits: for the society (health, services, food, energy)

Be fair: distribution of credits (authorship, reviewing, plagiarism, conflict of interest, collaborative science)

Respect autonomy: experiments on humans, freedom of research

Research definition

(goals and *how*)

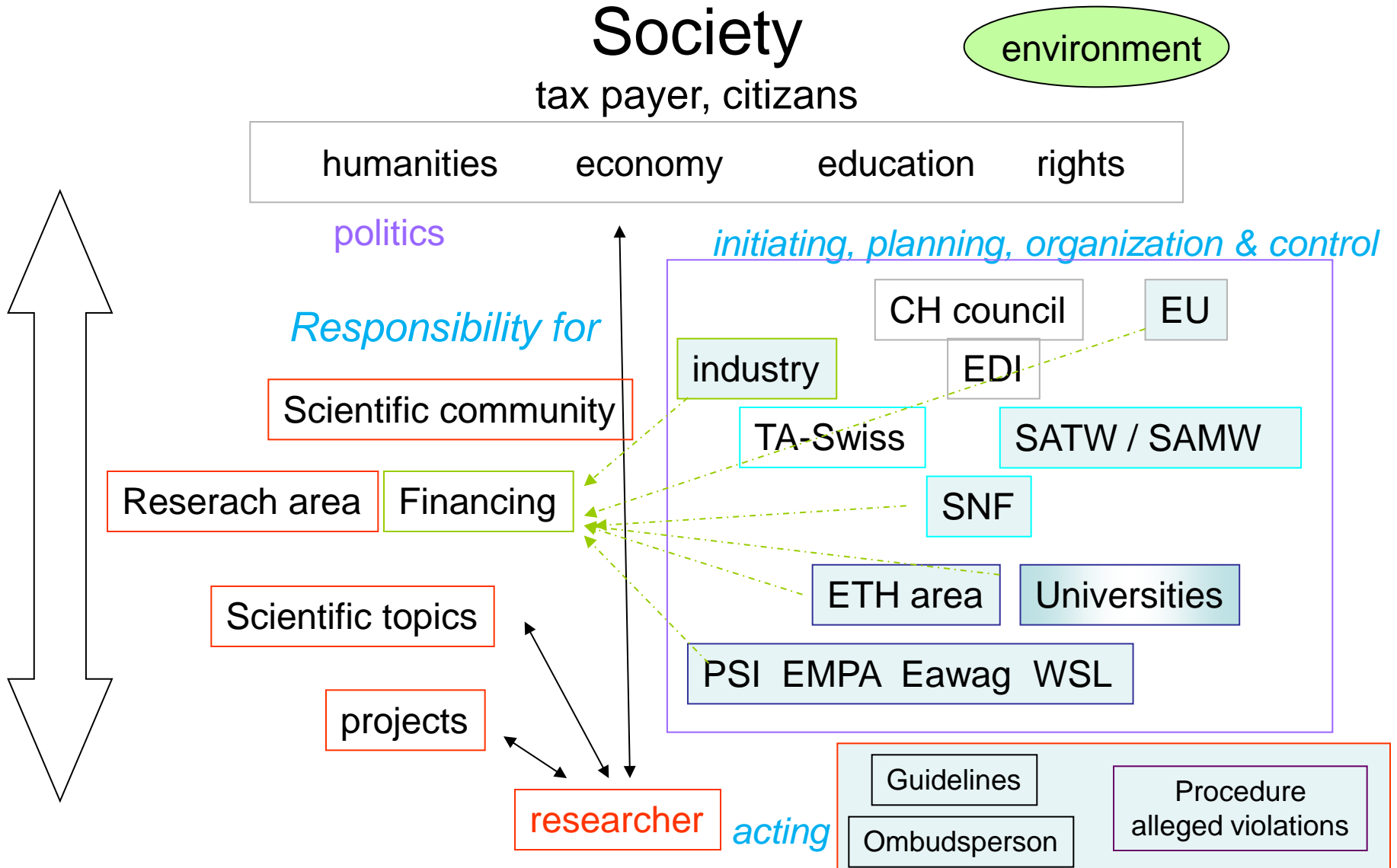
Research can be defined as **search for knowledge**, or as any **systematic investigation**, to establish **novel facts**, **solve** new or existing **problems**, prove **new ideas**, or develop **new theories**, usually using a **scientific method**. The primary purpose for **basic research** (as opposed to **applied research**) is **discovering**, **interpreting**, and the **development of methods** and **systems** for the advancement of **human knowledge** on a wide variety of **scientific* matters** of our world and the universe.

(Wikipedia)

You are creating options for the future !

* Criteria of science: *commonly* accepted, accessible, independent, revisable

Responsible research



Paul Scherrer Institut (PSI) :: Paul Scherrer Institute - Mozilla Firefox

Datei Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe

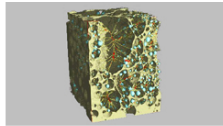
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www.psi.ch

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... afterwards, the readers of this project were scientists from the University of Bristol, England, who carried out their decisive experiments at the SLS at PSI.



X-rays provide insights into volcanic processes

16. October 2012

Experiments performed at the Paul Scherrer Institute (PSI) investigate processes inside volcanic materials that determine whether a volcano will erupt violently or mildly. In the experiments, scientists heated small pieces of volcanic material similarly to conditions present at the beginning of a volcanic eruption. They used X-rays from the SLS to observe, in real time, what happens to the rock as it goes from the solid to the molten state.



Silicon – Close to the Breaking Point

2. October 2012

Stretching a layer of silicon can lead to internal mechanical strain which can considerably improve the electronic properties of the material. Researchers at the Paul Scherrer Institute and the ETH Zurich have created a new process from a layer of silicon to fabricate extremely highly strained nanowires in a silicon substrate. The researchers report the highest-ever mechanical stress obtained in a material that can serve as the basis for electronic components. The long term goal aim is to produce high-performance and low-power transistors for microprocessors based on such wires.

[Older news can be found in the archive.](#)

Energie Spiegel

The newsletter regularly published by PSI on the subject of energy systems and their analysis.

Current news

Press Releases and highlights from the Paul Scherrer Institute

INFORMATION FOR

PUBLIC AND MEDIA

Discover and investigate. Explore the world of the Paul Scherrer Institute. Gain an insight into Switzerland's largest research institute.

SCIENTISTS AND USERS

Direct access for scientists, researchers and the users of our large-scale facilities. In English only.

INDUSTRY AND THE ECONOMY

With its expertise, PSI can support your business in solving technological problems. Within the SwissFEL project, we provide industrial partners with interesting opportunities for collaboration.



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 Switzerland

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About PSI
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Training and further education
 Reactor School (in German)
 Radiation Protection School (in German)

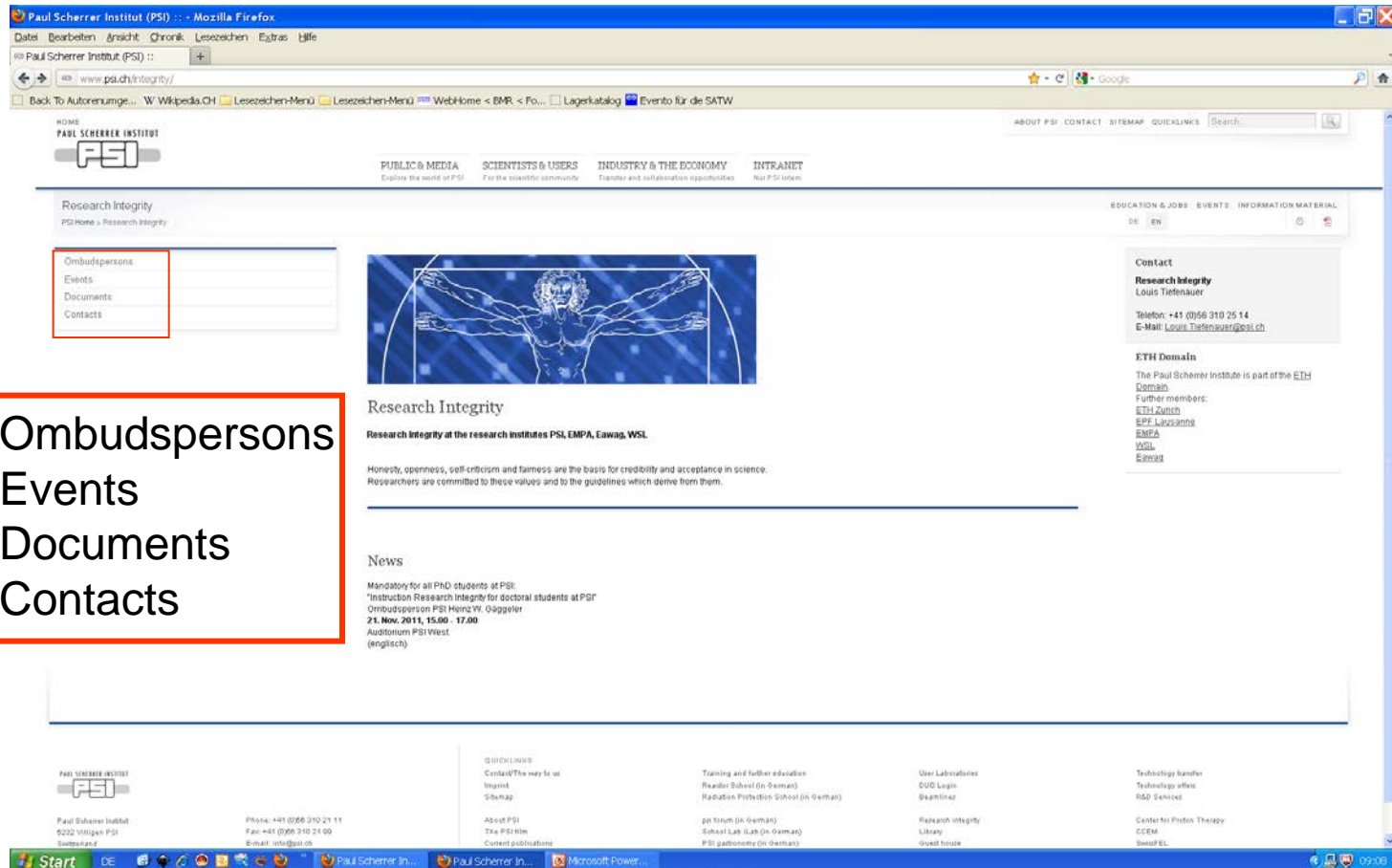
psi forum (in German)
 School Lab iLab (in German)
 PSI gastronomy (in German)

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Technology transfer
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 R&D Services

Center for Proton Therapy
 CCEM
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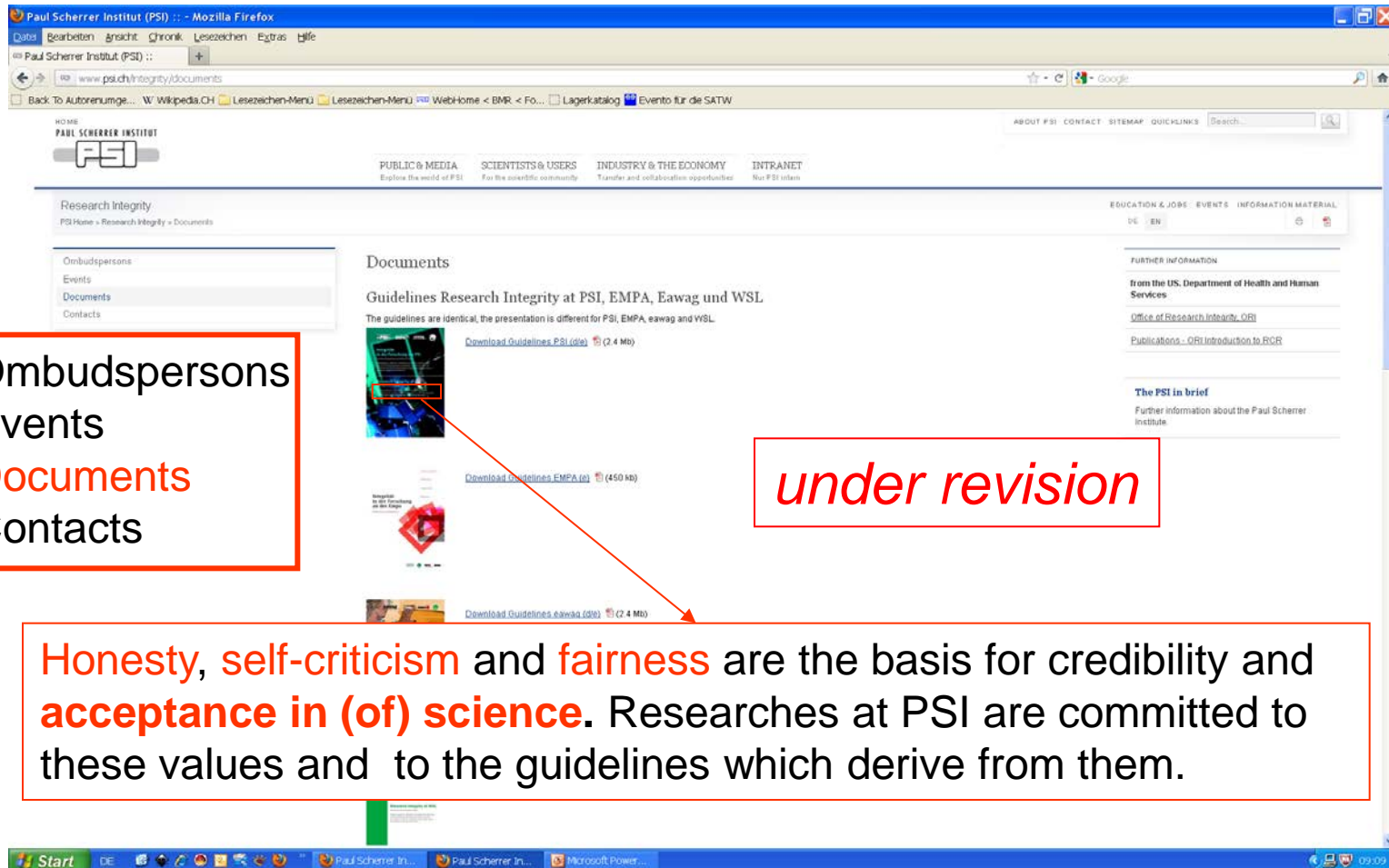
Research Integrity
 Research Integrity at the research institutes PSI, EMPA, Eawag, WSL

Honesty, openness, self-criticism and fairness are the basis for credibility and acceptance in science. Researchers are committed to these values and to the guidelines which derive from them.

News
 Mandatory for all PhD students at PSI:
 *Instruction Research Integrity for doctoral students at PSI
 Ombudsperson PSI Heinz W. Guggeler
 21. Nov. 2011, 15.00 - 17.00
 Auditorium PSI West
 (englisch)

Contact
Research Integrity
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ETH Domain
 The Paul Scherrer Institute is part of the ETH Domain.
 Further members:
 ETH Zurich
 EPFL Lausanne
 EMPA
 WSL
 Eawag

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www.psi.ch/integrity/documents

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INDUSTRY & THE ECONOMY Transfer and collaboration opportunities

INTRANET For PSI users

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Guidelines Research Integrity at PSI, EMPA, Eawag und WSL

The guidelines are identical, the presentation is different for PSI, EMPA, eawag and WSL.

Download Guidelines PSI (pdf) (2.4 Mb)

Download Guidelines EMPA (pdf) (450 kb)

Download Guidelines eawag (pdf) (2.4 Mb)

EDUCATION & JOBS EVENTS INFORMATION MATERIAL
DE EN

FURTHER INFORMATION

from the US, Department of Health and Human Services

Office of Research Integrity, ORI

Publications - ORI Introduction to RCR

The PSI in brief

Further information about the Paul Scherrer Institute.

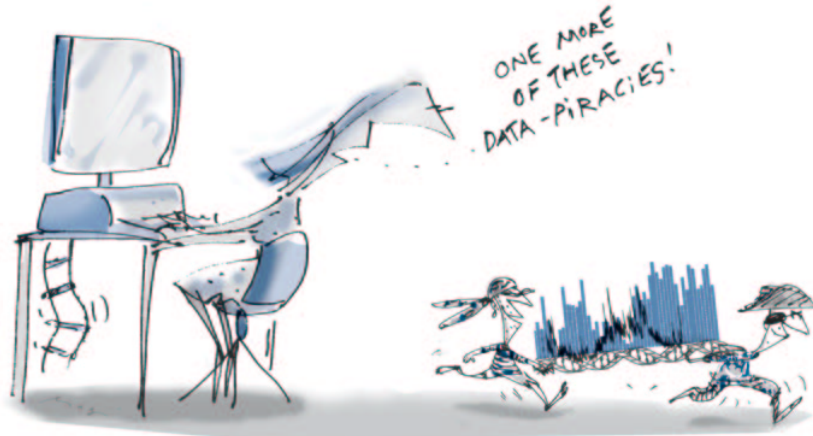
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under revision

Honesty, self-criticism and fairness are the basis for credibility and **acceptance in (of) science**. Researches at PSI are committed to these values and to the guidelines which derive from them.

Research integrity at PSI

- Workshop **Authorship** 2011
- Workshop **Avoiding plagiarism** 2012
- Workshop **Data management** 2013
- Workshop 2014 June 3: *Collaborative Sciences*



Courtesy form ETHZ
„Guidelines Research integrity“



Wir schaffen Wissen – heute für morgen

Research Integrity for Ph.D. students at PSI

4 Nov. 2013; 15:00

H.W. Gäggeler, Ombudsperson

L.Tiefenauer, Consultant Research Integrity

- Introduction to Research Integrity at PSI (Consultant Research Integrity: L. Tiefenauer).
- Guideline *Research Integrity at PSI*
- Discussion of practical aspects:
 - a) Possible area of conflict PSI ↔ (Technical) University
 - b) Duties of supervising persons (Professor, supervising scientist@PSI)
 - c) Lab-protocols & data management
 - d) Scientific writing and submission of manuscripts
 - e) Authorship
 - f) Plagiarism and scientific misconduct
 - g) Ownership of scientific results
- Tasks of the Ombudsperson
- Discussion

- **Information distributed to all employees,**
effective since 1st June 2010

„PSI is committed to excellence in research“ (J. Mesot)

- **Chapters:**
- General
- Research planning,
- Execution of Research,
- Publication of Research Results

- *Not relevant for Ph.D. students:*
- *Integrity of Peer Reviewing*

- Product of a Research Institute is Scientific Output to the benefit of Society.
(A scientific project is finished only after publication or transfer to another organisation or a patent).
Sometimes conflict with Ph.D. thesis: final goal of thesis is to receive doctoral degree!

- Every organisation such as PSI is routinely evaluated by peers. The output is measured in terms of scientific papers qualified by scientific impact factors: average number of citations received per paper published during the two preceding years. (e.g. Chem. Rev. 41.3; NATURE: 38.6; Physical Review Letters: 7.9; Radiochimica Acta: 1.4).
- *Causes sometimes problems concerning acceptance of research fields in highly specialized areas (e.g. Radiochemistry)!*

- *Final authority to accept a Ph.D. thesis is the University or ETH, based upon recommendation of Professor (usually supported by external reviewers selected by Faculty or Department of the University).*
- *PSI is owner of scientific results achieved from experimental/theoretical research.*
- *Supervisor of Ph.D. student at PSI is responsible against PSI, third party organisation (e.g. SNF), Professor.*

- *Graduate programs at Universities (compulsory for all Ph.D. students independant of financial support)*
- *Example DCB@Bern University:*
 - *A) Participation in research-group weekly seminars*
 - *B) Attendance of DCB seminars (10 seminars/semester)*
 - *C) Attendance of summer schools/conferences etc.*
 - *D) Teaching obligations at BS/MS level (BS:german/MS: english).*

- *Two situations: professor has initiated Ph.D. thesis (e.g. via SNF) and delegates supervision to a PSI staff scientist, or PSI staff scientist has initiated Ph.D. thesis and then searched for a professor willing to accept Ph.D. student.*
- *Be aware that at the end only professor can write recommendation to the University or ETH to accept the research work be sufficient for a doctoral degree.*

- *This is also the reason for request to write progress reports (not requested by every professor).*
- *Please accept that supervising scientist at PSI has to optimize his scientific output to be supported also in future by PSI (or third party organisation (e.g. SNF))!*

- *Several recent Ph.D. studies were subjected to criticism (plagiarism, misconduct). Not at PSI!*
- *In all these cases: evaluation of criticism decisively dependet on quality of lab-protocols and data management.*
- *Unfortunately: PSI has no compulsory regulation except some general statements in Research Integrity at PSI Guidelines!*
- *Be aware upon leaving PSI: PSI is owner of your lab protocols etc.*

- *Rules for authorships should be decided prior to starting the project.*
- *If you want to be first author, then you have (usually) to write the manuscript!*
- *Decide whether the manuscript should be a letter or a full manuscript.*
- *Carefully read instructions of the journal prior to writing!*
- *Describe your results and conclusion as precise as possible. Avoid duplicating statements. Follow a clear thread (Introduction (status of research in the field with fair citing of references ending in statements why the actual research has been conducted), Experimental, Results, Discussion, Conclusion. Avoid statements on „next steps“, i.e. future studies).*

- *Do not forget acknowledgements if needed.*
- *For a Ph.D. thesis. Best case: collect published manuscripts and add introduction and conclusion (little work). Usual case: Write manuscript along the guidelines of a scientific full paper (much work).*

- *PSI is the authority allowing submission of manuscripts. In reality this duty is delegated to the division head. Again in reality this submission right is delegated to lower levels (e.g. lab head, group leader), depending on division!*
- *A submitted manuscript can not be used in a Ph. D. thesis as a publication. This is possible only after the manuscript has been accepted for publication (usually after revisions have been made upon request of reviewers).*

- *As already mentioned: usually the person writing a manuscript is the first author.*
- *Exception: Experimental particle physics which list authors alphabetically.*
- *After first author there are several „rules“ (depending on discipline):*
 - *alphabetically*
 - *most important scientists on position two, three etc.*
 - *leader of the project at the end*

- *Often corresponding author is the leader of the project (e.g. group leader). Ph.D. students should not act as corresponding author because they may have left PSI while there is still ongoing correspondance with the journal.*
- *Every author should have contributed to conception & design and/or results and/or analysis of data! Some journals do not accept technicians as authors. Do not list „honoris-causa“ authors. But be aware that sometimes scientists (e.g. professors) want to be listed because they initiated the project and perhaps organized funding of the project. All authors must approve final version.*

- *Plagiarism: Theft of intellectual property, e.g. by copying part of a manuscript from literature without reference.*
- *Self-plagiarism: copying parts of an own manuscript published previously.*
- *Be aware: SNF, Universities, Scientific journals (example: CHIMIA) etc. implemented commercial software to check submitted projects/manuscripts for plagiarism!*
- *Plagiarism is a very serious misconduct which may lead to the loss of the doctoral degree!*

- *Scientific misconduct means that you actively modified your data or analysis of data to reach a given goal! (Example from Berkeley National Laboratory).*
- *Publication misconduct: Go public (e.g. Press release) prior to scientific publication. Happens unfortunately quite often! Example: observation that neutrino velocity is faster than velocity of light!*

There is also

- *Honest error &*
- *Scientific disagreement*

*These two cases are not subject to
misconduct in sciences*

- *„Who pays owns the product“*
- *The institution at which the scientific work has been conducted is the legal „owner“ of the results!*
- *Consequence: when you move to another institute/University you have no right to sell your PSI results as product of the new employer.*
- *Suggestion: when you still publish PSI results list your name under PSI but label your name with an additional sign which refers to the actual employer (Example).*

Reexamining the heavy-ion reactions $^{238}\text{U} + ^{238}\text{U}$ and $^{238}\text{U} + ^{248}\text{Cm}$ and actinide production close to the barrier

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^b *currently at Advanced Science Research Center, Japan Atomic Energy Agency, Tokai-mura, Ibaraki 319-1195, Japan*

^c *currently at Paul Scherrer Institut, 5232 Villigen, Switzerland*

- *The merits of a scientific result, however, go to the persons involved. This means that possible awards (e.g. Nobel prize) goes to the scientist and not the institute. (Marie Curie received her first nobel prize in physics in 1909 for her Ph.D. thesis!).*

- *In all cases where you feel a deplorable state of behaviour relevant to one of the topics discussed under „practical aspects“ then contact the Ombudsperson.*
- *This also holds in cases you feel to be scientifically mobbed (you feel to have substantially contributed to a project but the project leader does not want you to be a co-author of the publication) or the entire group of scientists involved in the project does not follow the ethical rules of science (e.g. the group copy's the idea of a foreign group (scientist) without referring to it).*

- *If you feel personally mobbed, please contact Mrs. Hedwig Habersaat or Mr. Yves Lörtscher (see PSI web-page)*
- *The Ombudsperson is fully independant. He has not to report individual cases to any PSI authority. Therefore, all discussions with the Ombudsperson are anonymous.*

- *ETHZ offers dedicated lecture course given by Dr. sc. nat. Gerald Achermann in Fall Semester entitled:*
Research Ethics
- *PSI offers yearly Informations on selected topics:*
In 2014 it will be *Collaborative sciences* by Dr. Louis Tiefenauer on 3 June

- *Who wants to discuss which topic?*