



Wir schaffen Wissen – heute für morgen

## Research Integrity for Ph.D. students at PSI

*19 Nov. 2012; 15:00 – 17.00*

*H.W. Gäggeler, Ombudsperson*

*L. Tiefenauer, Consultant Research Integrity*

*D. Oderbolz, AIT@PSI: ALFRESCO*

- Introduction to Research Integrity at PSI (Consultant Research Integrity: L. Tiefenauer).
- The data management system ALFRESCO (D. Oderbolz)
- 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
- Miscellaneous

- **Information distributed to all employees,**  
effective since 1<sup>st</sup> 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. NATURE: 31; Physical Review Letters: 7.3; Radiochimica Acta: 1.5).
- *Causes sometimes problems concerning acceptance of research fields in highly specialized areas (e.g. Radiochemistry)!*

- *Final authority for acceptance of Ph.D. thesis is the University, 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 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 obligation about these topics 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 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: copying part of a manuscript from literature without reference. Happens often in the introductory section.*
- *Self-plagiarism: copying parts of an own manuscript published previously.*
- *Be aware: SNF, Universities etc. start to implement 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. Widespread behaviour! Example: recent discovery that neutrino velocity is faster than velocity of light!*

- *„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 a \* and write to \* (usually a footnote): presently at (name of the new employer)*
- *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 Kobler Waldis or Mr. Yves Lörtscher*
- *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** (in 2012: 851-0180-00L; Wednesday 5:15 pm – 7 pm, ML F38)*
- *PSI offers yearly Informations on selected topics, in 2013 «Data Management», chaired by Dr. Louis Tiefenauer, June 4 2013.*
- *Who wants to discuss which topic?*