



# Research Integrity Risks and Management

Nicholas H. Steneck, PhD

World Science Forum  
25 November 2013

**Conflicts of Interest**



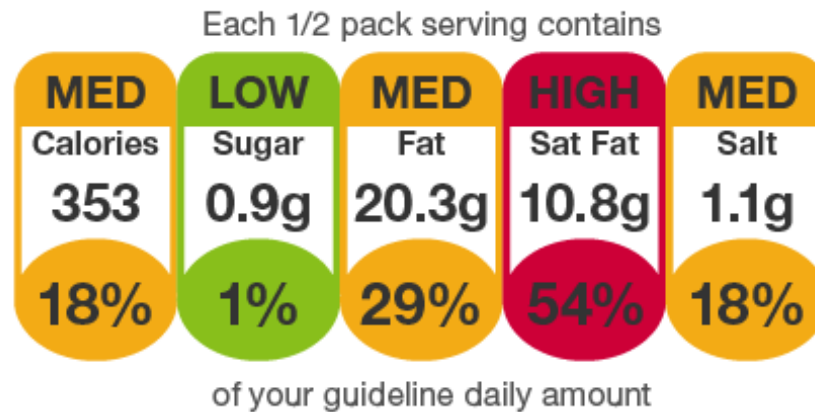
# Society manages many risks



**Terrorism**



**Fire**



**Healthy Food**

# ◆ Misconduct poses risks for research:



Schoen



Hwang

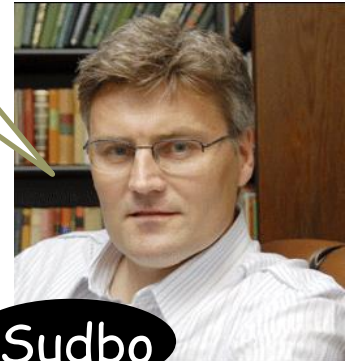


Thompson

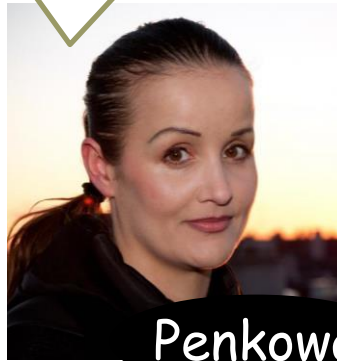
**Jan Hendrik Schön**  
US/Germany  
Falsified semiconductor research  
13 papers retracted in Nature & Science  
Case has political implications



Stapel

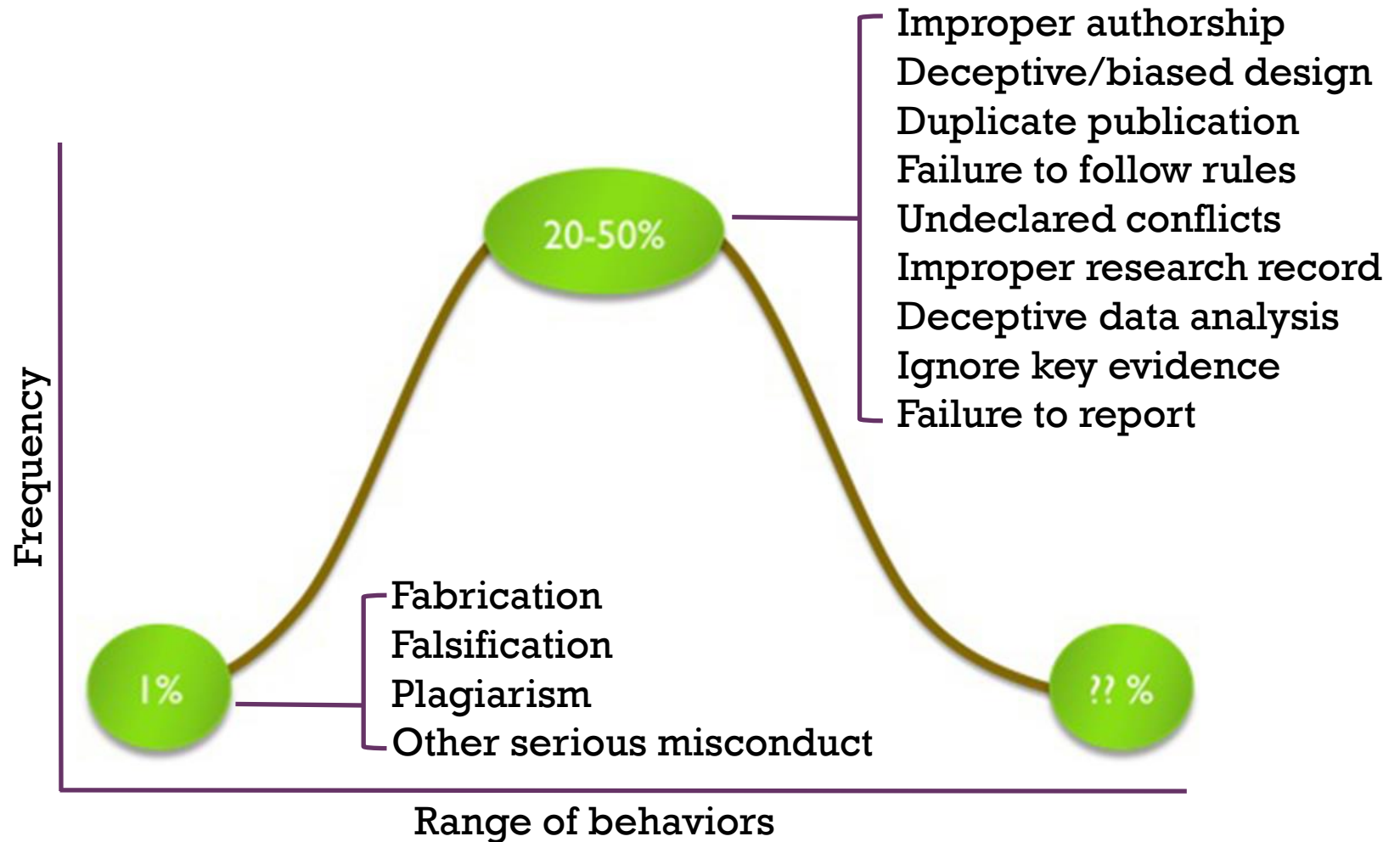


Sudbo



Penkowa

# Range and frequency of risks





# Serious integrity issues to address:

---

- Most serious misconduct is not reported or detected:
  - US closed cases less than 1% of anticipated misconduct
  - 40% of researchers do not report suspected misconduct
- 80,000 cases of suspected duplicate publication not investigated (<http://dejavu.vbi.vt.edu/dejavu/>)
- Half of open-access, online journals may be conducting poor or no peer review (*Science*, 4 October 2013, Vol. 342)
- J. P. Ioannidis, Why most published research findings are false. *PLoS Med* 2, e124 (Aug, 2005)
  - “Simulations show that for most study designs and settings, it is more likely for a research claim to be false than true.”
  - “[F]or many current scientific fields, claimed research findings may often be simply accurate measures of the prevailing bias.”



# How is research managing its integrity risks?

---

Reports & Codes  
Misconduct/Integrity Policies  
Improved Training



# Reports and Codes

## ■ Examples

- 1990 US NAS...Responsible Science
- 2007 ff, WC on Research Integrity
  - Singapore Statement; Montreal Statement
- 2012, IPA, Responsible Conduct in the Global Research Enterprise
- 2013, GRF, Statement of Principles for Research Integrity



## ■ Strengths:

- **Set standards; recommend and encourage action**



## ■ Shortcomings:

- **Accountability: will anyone follow?**
- **Limited impact on the day-to-day practice of research**



# Misconduct policies

---

- Objective: to define research misbehavior & response
  - US, narrow definition: fabrication, falsification and plagiarism
  - Canada/Australia: failure to follow best practice
- Strengths:
  - **Countries and governments are taking misconduct seriously**
- Shortcomings:
  - **Inconsistent definitions and policies**
  - **Weak accountability**
  - **Most misconduct is not addressed**







# Training

---

## ■ Objectives:

- Satisfy requirements
- Make researchers aware of best practices
- Foster ethical and moral reasoning

## ■ Strengths:

- **More widely recognized as important**



## ■ Shortcomings:

- **Do not know what type of training is needed**
- **No training is available in many countries**
- **Institutional support is weak**



# Effectiveness of responses?



- Risk is high and increasing



# What needs to be done?

---

1. Greater effort to harmonize policies
  - Global documents with global support are essential
2. Greater commitment on the part of leadership
  - Research leaders must be visible and provide real support
3. Increased resources
  - Globally, promoting integrity is not included in research budgets
4. Take steps to reduce pressure and incentives to cheat
  - Base rewards on 3-5 best publication/year, not number
  - Reduce the number of PhD students in most fields



# Why are integrity risks important?

---

Undermine the reliability of the research record

Loss of confidence

Loss of support

Without integrity, science will have no future to  
invent!



# Thanks for time and attention

---

- Questions and more information

*nsteneck@umich.edu*