



DENIM 2018 Looking Back, DENIM 2019 Looking Forward

DENIM 2018

What is this talk about?

- I struggled to differentiate this talk from what will be discussed during the ISNIE Annual General Meeting
- I decided to focus on DENIM, and how it has evolved, and not on the (slightly – for now anyway) more general scope of the ISNIE
- I found it difficult to separate how I feel personally about DENIM from what DENIM is and means to the entire community
- I decided to embrace this, and use a personal hobby – photography – to illustrate both my personal view toward as well as show how the community as a whole has developed



An Illustrative Anecdote

- After the first DENIM ended, Leigh Perrot sent me an e-mail
- He said that he saw me with a camera the entire time, and could I send him some photos with people in them for the website
- I went through the photos I took, only to discover that I did not have any photos with people in them





DENIM 2012

- Most of the photos I took during the first DENIM were of Formula One Cars







DENIM²⁰¹³

Tomorrow's Beamlines



DENIM 2013

- I hosted DENIM 2013, and did not take any photos
- Jen Martin, an ORNL / SNS photographer, took photos during the event
- She included people in her photos



DENIM 2013



DENIM 2013



DENIM 2013

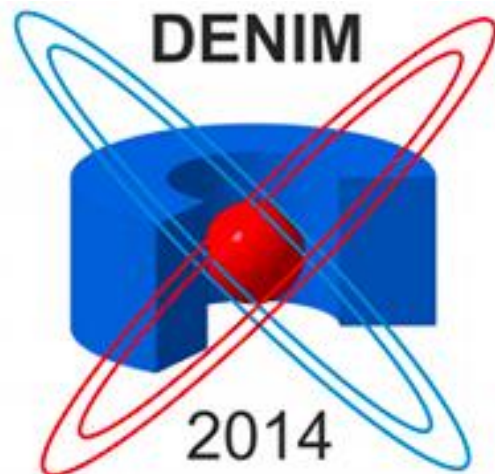


DENIM 2013

- Ironically, DENIM 2013 was remembered for photography



Not the actual photo of “the photography event”

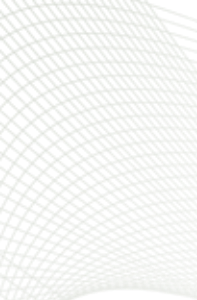


DENIM 2014

- In Garching and Munich, I find myself taking photos of cars again, but now there are people in the photographs as well
- The DENIM community is also really beginning to gel
- Nick Frost gives a talk about surveying DENIM members about airpads, and incorporating the results of his survey into his design

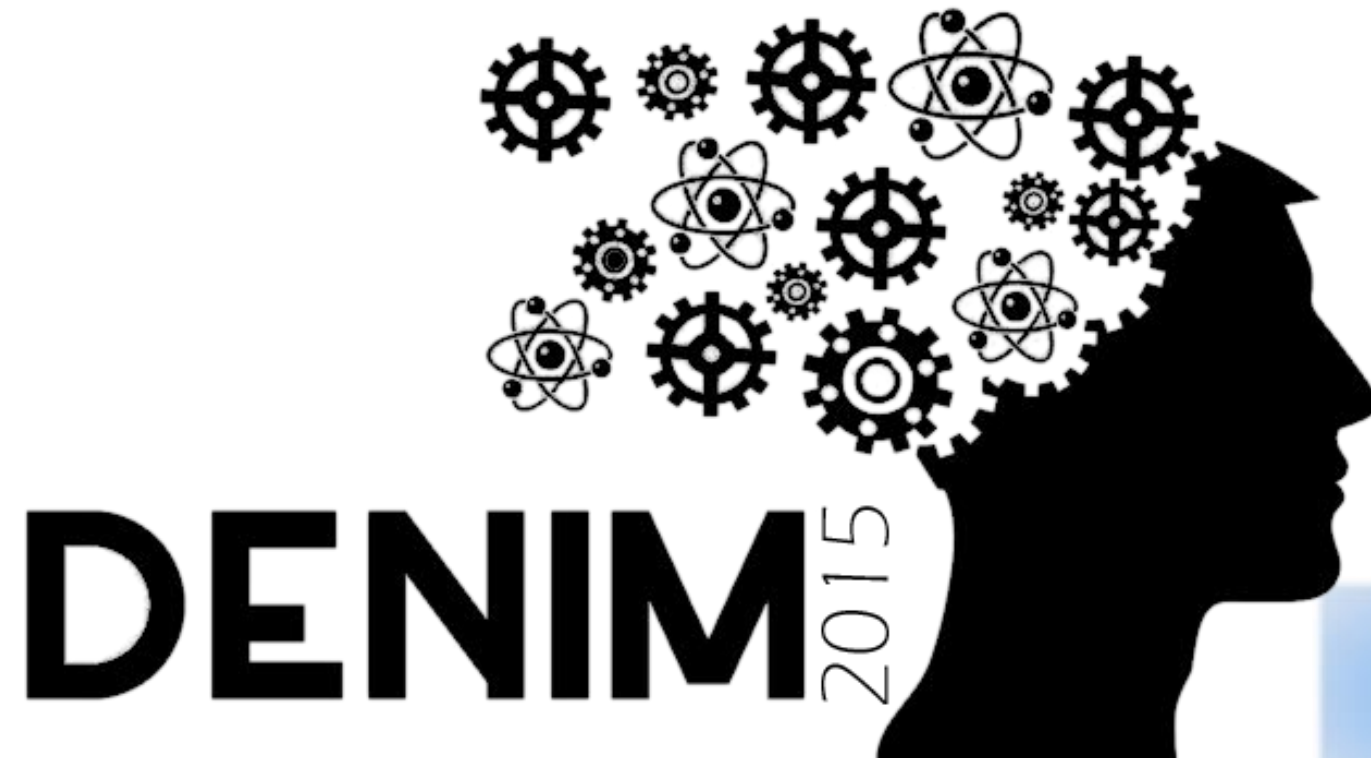








Budapest



DENIM 2015

- The weekend before DENIM 2015, I am taking photos of Formula One cars again

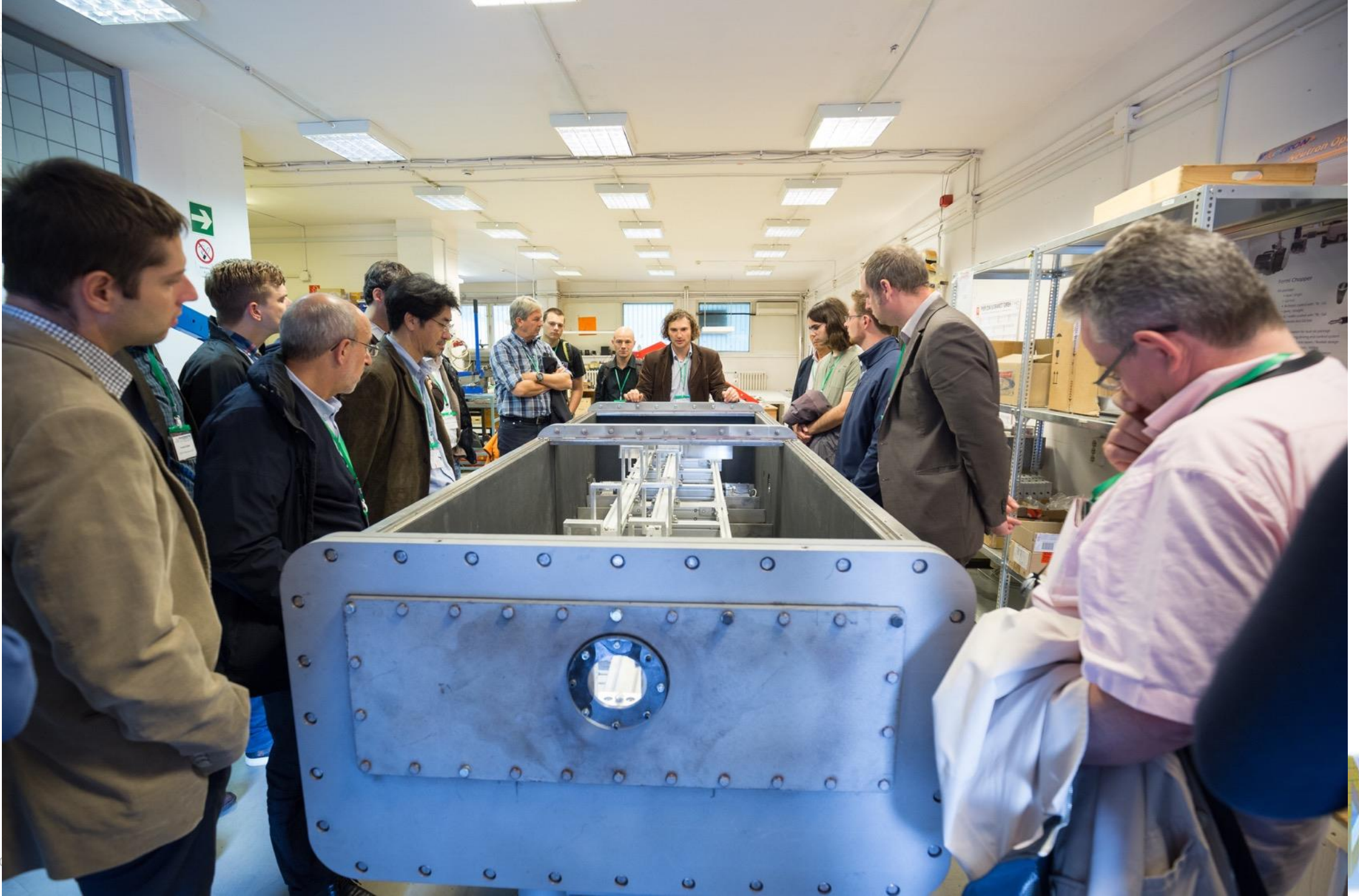


DENIM 2015

- By DENIM 2015, there is no question that we are a real community
- I find myself taking photos of people more and more















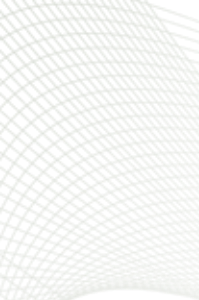




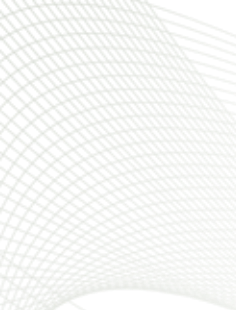










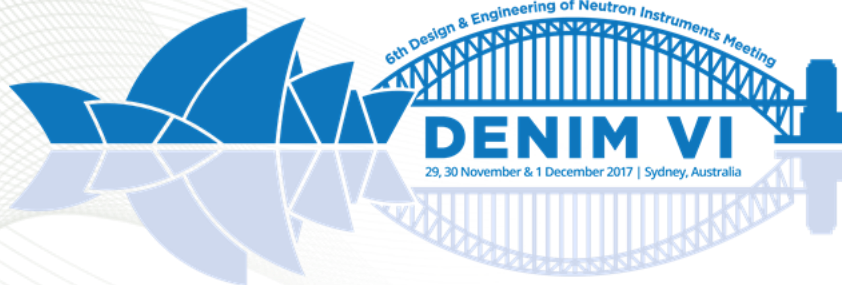


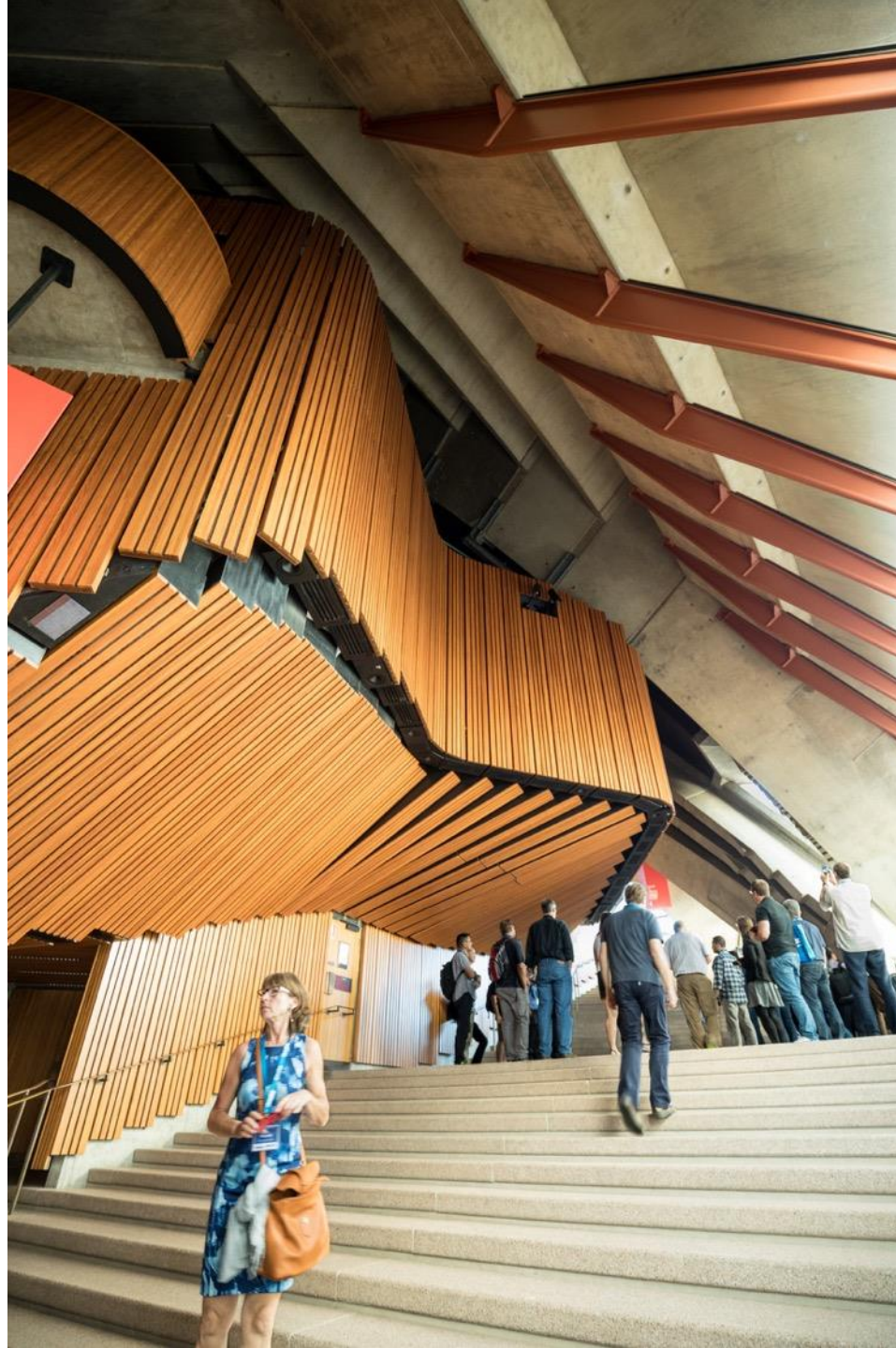
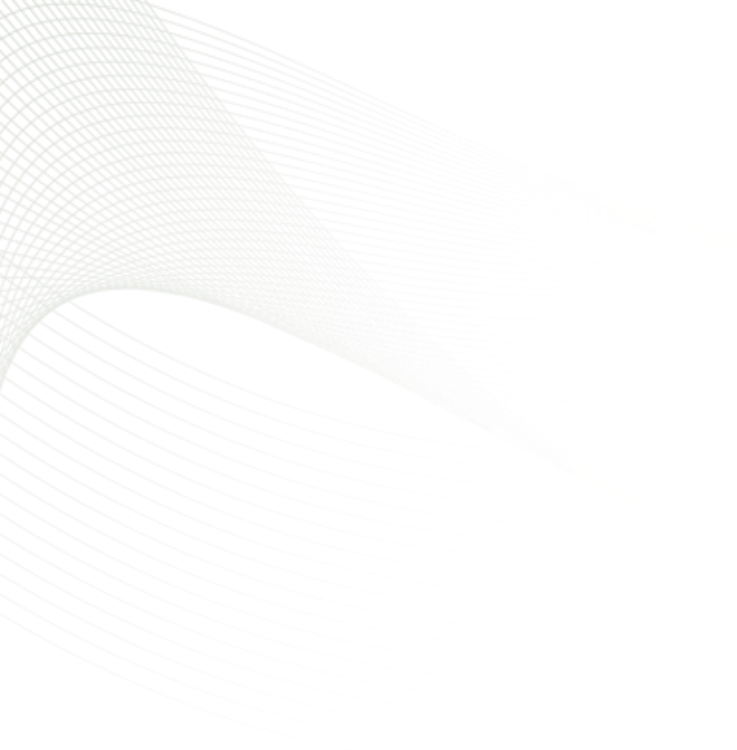


DENIM

- When DENIM started, we tried hard to ensure that as much as possible, talks should be on a technical, engineering topic
- This is still important – it is still the most important
- But we realized along the way that the opportunity to meet and network with our colleagues from other facilities is just as important

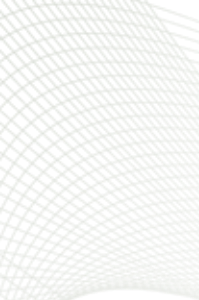












Neutron source ecosystem 2017



2017

world-leading

ILL

ISIS

SNS

J-PARC

regional/national

Europe

North America

Asia

Others

MLZ

PSI

NIST

HFIR

ANSTO

LLB

HZB

NRU

JRR-3

CSNS

Dhruva

high-flux &
medium-flux
scattering
facilities

BNC

Missouri

KURRI

Bariloche

low-flux &
compact
sources

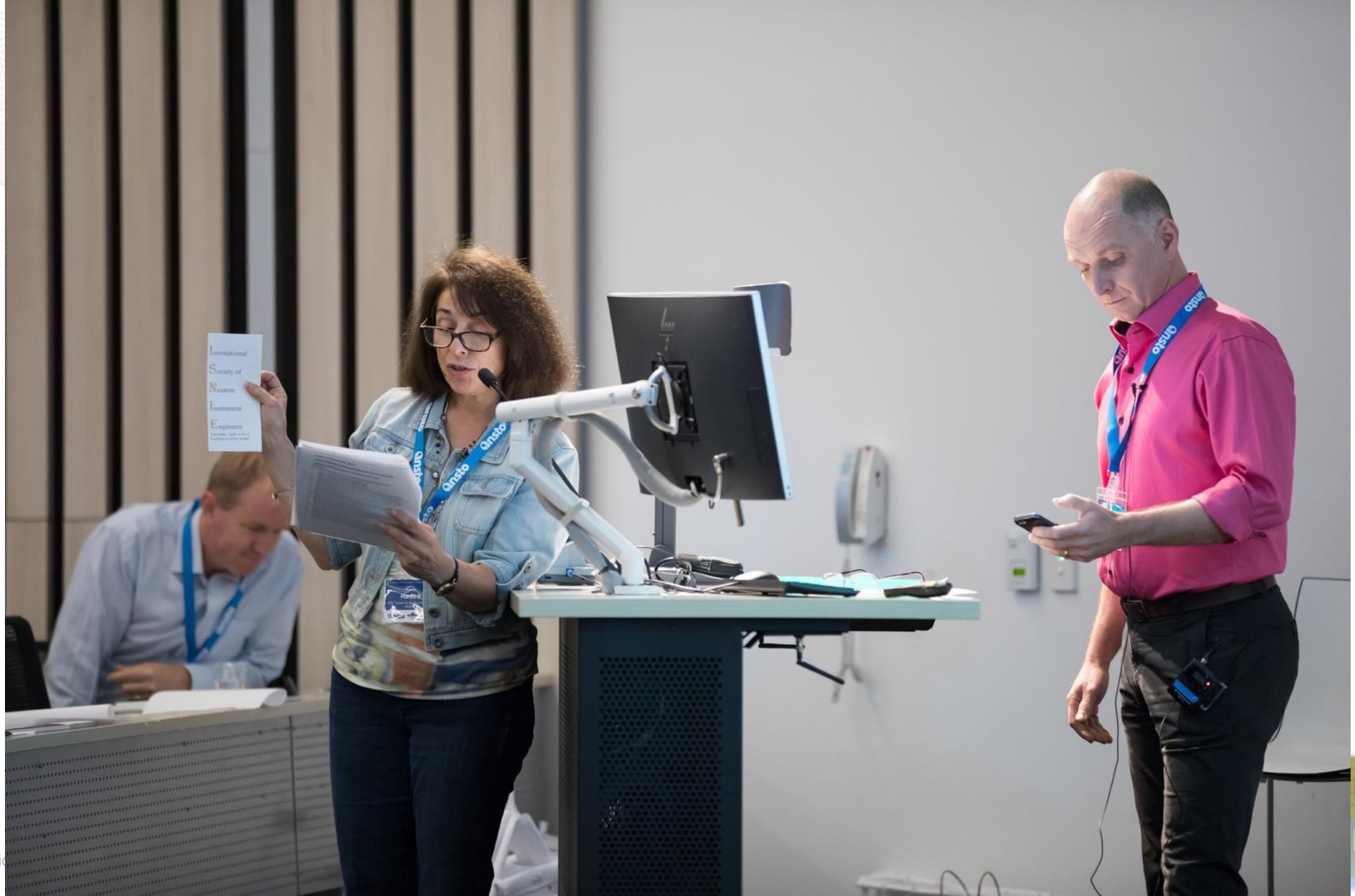
HUNS

SAFARI



Office of
Chief Scientist
& Engineer





Something about neutron sources on the moon



Getting On Top Of It

- Earlier in my career, I would say that “A good engineer does not need to know everything, but knows where to look to figure it out”
- DENIM teaches us “A good neutron instrument engineer does not know how to do everything, but knows *who* to ask”





7th Design and Engineering of Neutron Instruments Meeting 2018













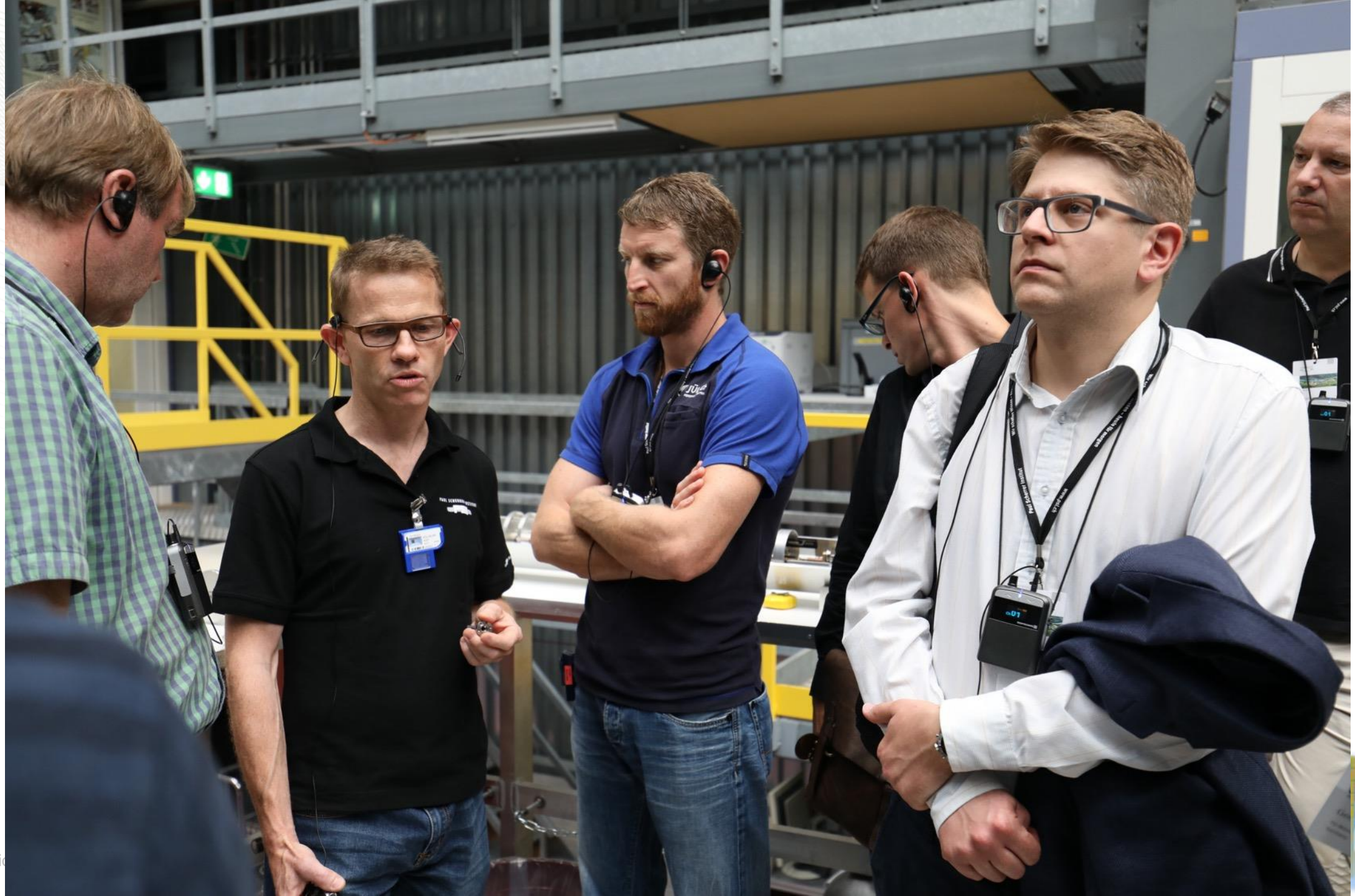


















The Neutron

- Magnetic moment
- Gyromagnetic ratio $\gamma_n = 1.83 \cdot 10^8 \text{ rad s}^{-1} \text{ T}^{-1}$
- Maintain polarisation
 - Guide field coils
- Spin manipulation tools
 - RF flipper, current screens, λ -coils
- Spin Precession volume
 - Homogeneity and field line integral













DENIM – Looking Forward

- DENIM and the ISNIE are for **Engineers!!!**
 - All (even Scientists!) are welcome, but DENIM and the ISNIE are engineering focused activities / organizations



Reviews

- Independent review is a fundamental engineering principle
- A (willing) pool of expert reviewers are available in DENIM and the ISNIE



DENIM is People

- I have been an engineering manager for most of the time DENIM has existed
- I believe that engineering management is a form of systems engineering
- but the system includes people, which are much harder to understand than mechanisms



DENIM



Join the ISNIE

It's for Engineers!

but *all* are welcome



DENIM

- Next Year – NCNR / NIST, Gaithersburg, Maryland, U.S.A.



NIST

NCNR



DENIM

- 2020 – J-PARC

