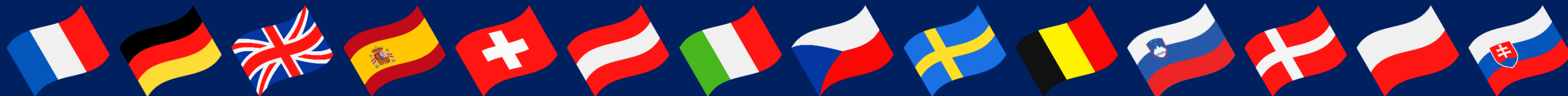


The Institut Laue Langevin – Neutrons for society

*Leading the world through
European integration*

Mark JOHNSON

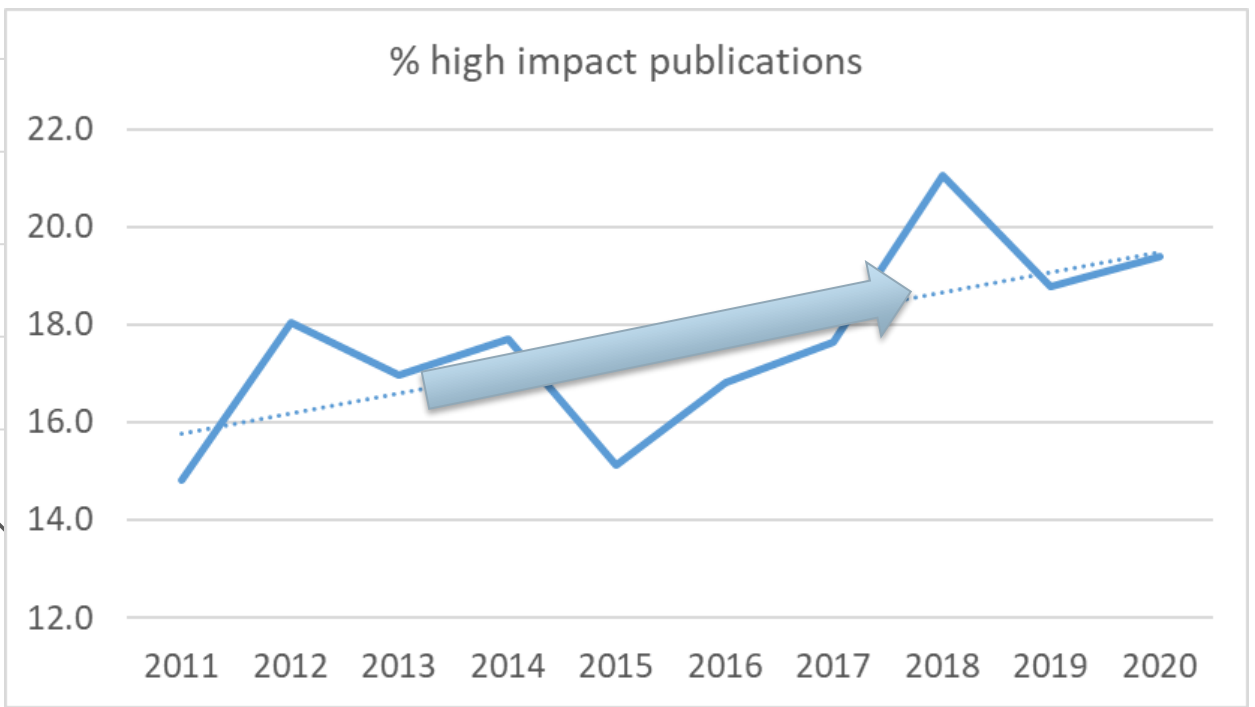
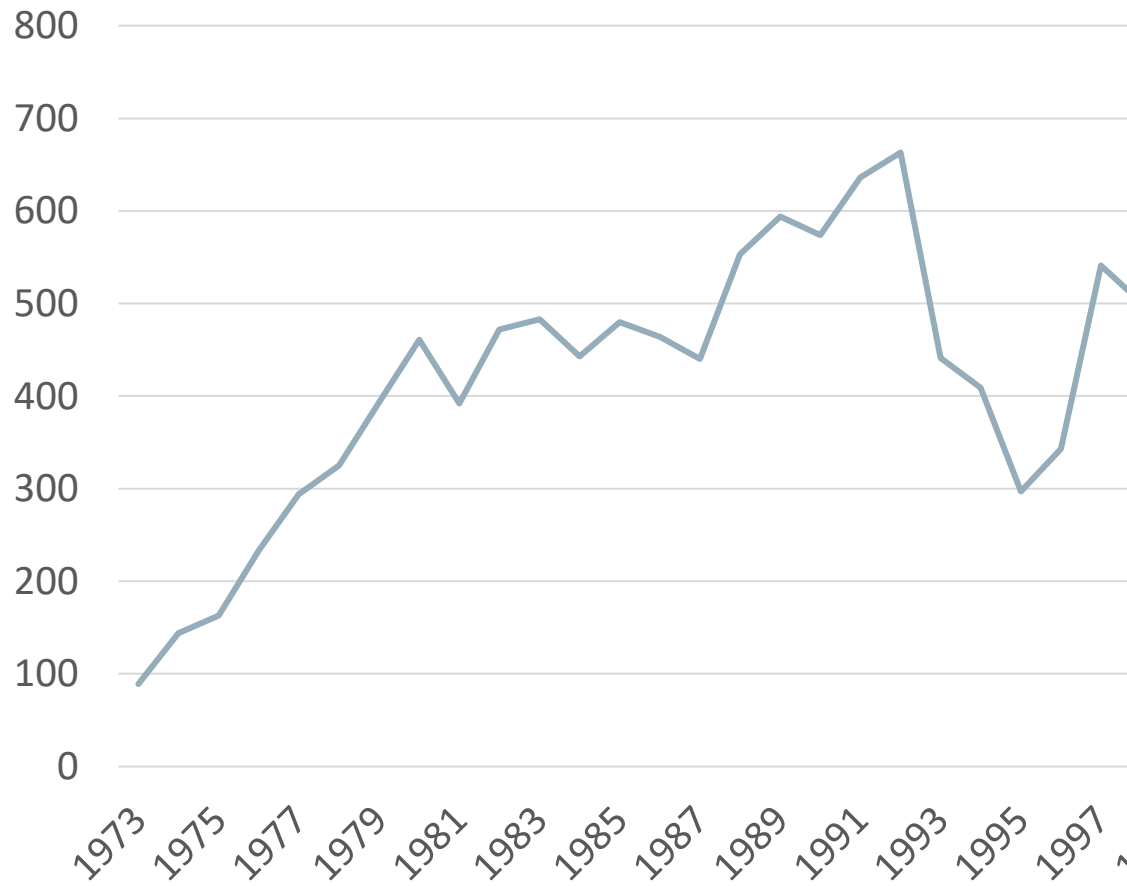


A little bit of history...



Scientific return on investment

7 Bn€₂₀₂₂: 45 000 experiments → 25 000 publications of increasing quality



Key figures about the ILL



1400 users from an active community of 12 000 scientists



1000 experiments/year



600 publications/year



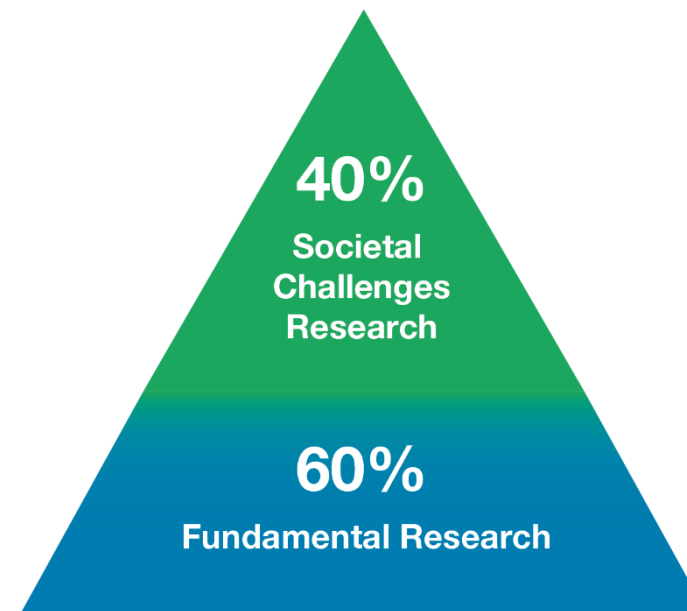
65 countries



28 instruments + 8 CRG



160 – 170 days/year



Budget: 100 M€/year

Reactor projects for safe and reliable operation

5 M€/year e.g. reactor vessel replacement (50 M€₂₀₂₂), post-Fukushima response (30 M€), main beam tube, reception building & security fence (20 M€)

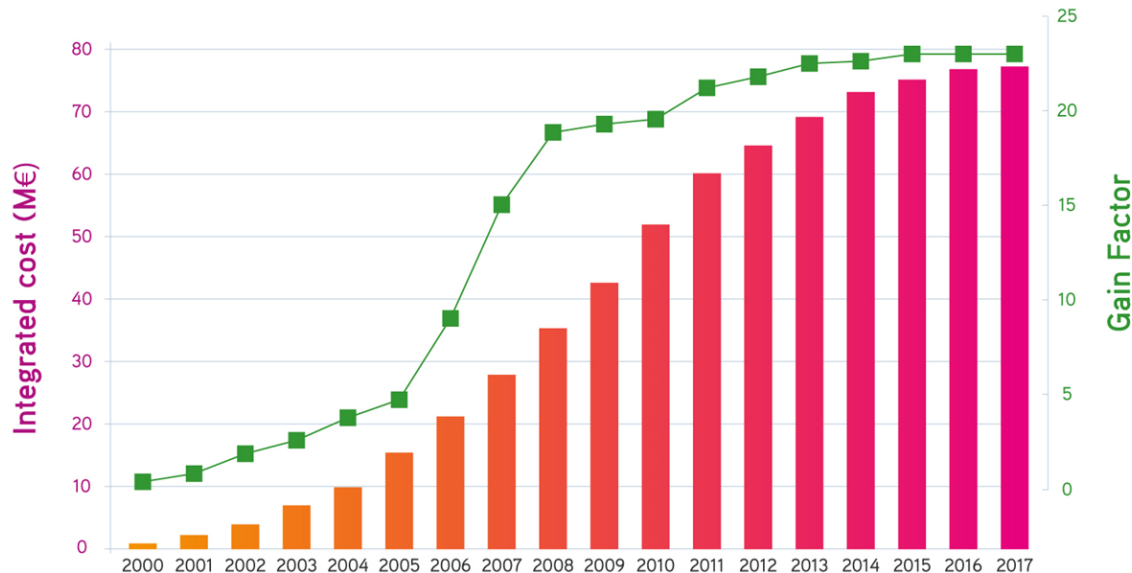
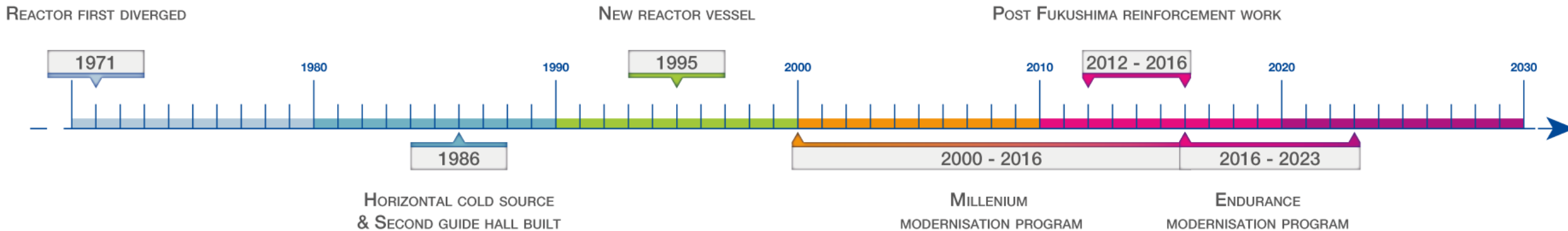


THE ILL REACTOR: THE BRIGHTEST (NEUTRON) SPOT IN EUROPE FOR ISOTOPE PRODUCTION



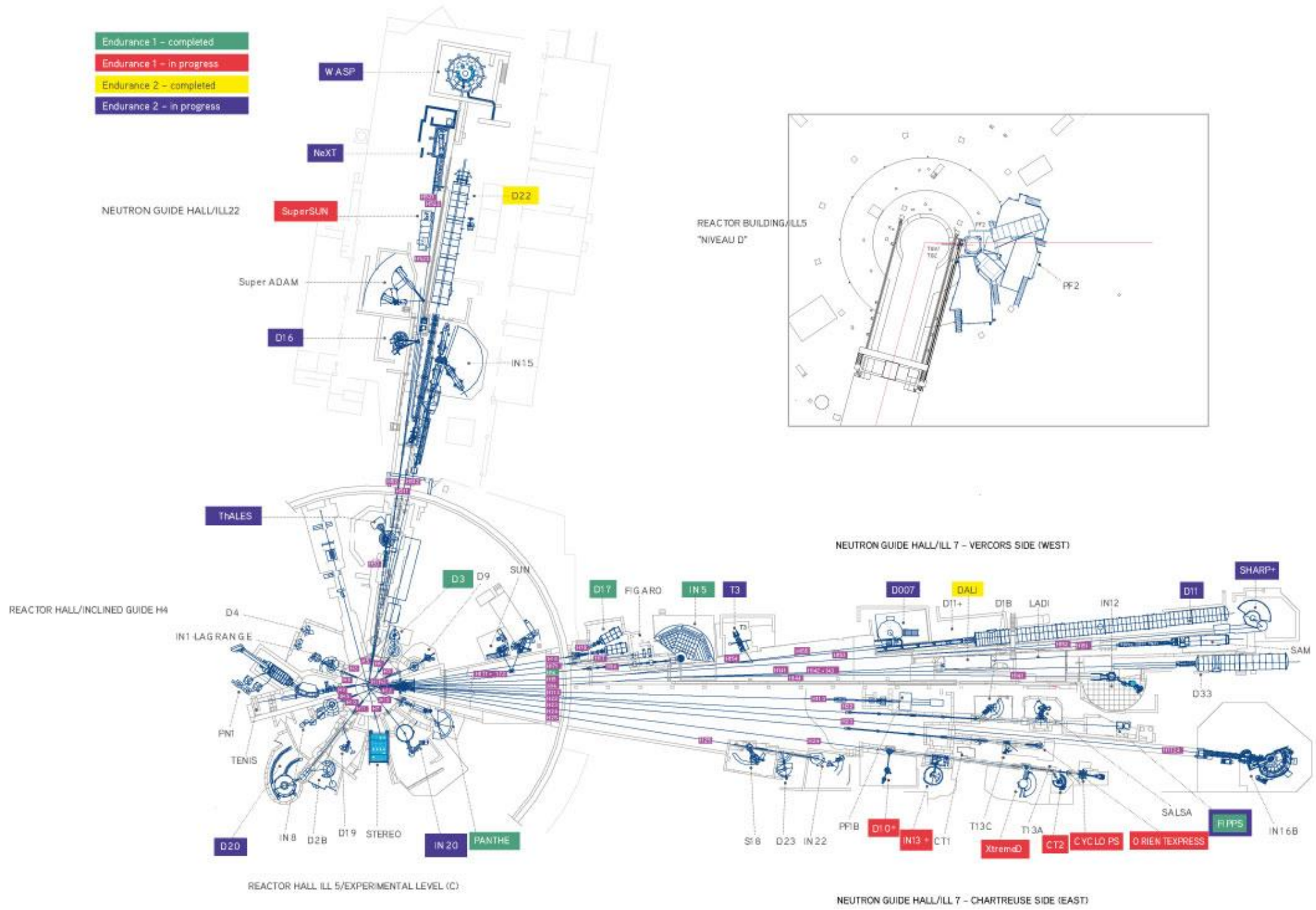
Modernisation programmes

Continuous upgrade of our instruments and infrastructure



60 M€: 2016-23: 30 projects

THE ILL'S INSTRUMENT SUITE



Instrument & infrastructure

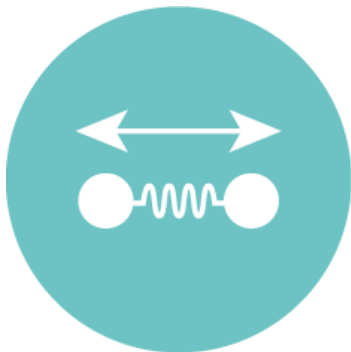
Neutron guides, mechanics, electronics, detectors, servers, software,...



Why neutrons?



Study structure



Study dynamics



Study magnetism



Penetration power



Non-destructive



**Versatile
sample environments**



**Sensitivity to
light elements**



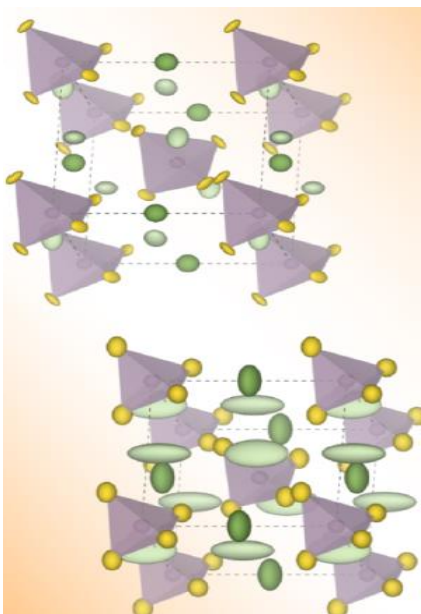
**Isotopic
contrast**



Complementarity

Developing new battery technologies

Solid electrolyte Na_3PS_4
D2B, IN6



Understanding COVID-19 infection

SARS-Cov-2 spike fusion proteins
D22, Figaro, IN5, IN15,
D-Lab, PSCM



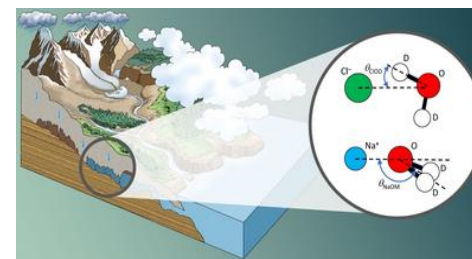
Complex movement of magnons in a skyrmion lattice

Polarized inelastic neutron scattering of MnSi
Thales



Exploring salty water structure - carbon sequestration in deep aquifers

NaCl in D2O by in situ high-pressure neutron diffraction, chlorine isotopic substitution
D4



Blocking bacterial infection

Neutron crystallography of LecB
LADI/DALI



Framprakis et al. *Chemistry of Materials*, 2022

Santamaria et al. *J. American Chemical Society*, 2022

Weber et al. *Science*, 2022

Polidori et al. *J. Chem. Phys.*, 2021

Gajdos et al. *Nature Com.* 2022

To conclude...

- Building on an exceptional year for science in 2021...
- A safe, secure and sustainable reactor through the next decade and beyond
- Endurance upgrade programme (~30 projects) → state-of-the-art facility for science and innovation
- Science programme restarts January 2023 → 160 – 170 neutron days/year
- **Business opportunities through the next decade: 50 M€/year of recurrent and capital expenditure**

In 2021**176**days of
neutrons**5506**instrument
days**1435**

experiments

1413

user visits

568

publications



@ILLGrenoble



ILL – Institut Laue Langevin



InstitutLaueLangevin

Delivering the best science for the next decade and beyond



Signature of 6th protocol last September funding ILL (0.75 Bn€) from 2024 - 2033

People, diversity & culture

The international ILL team @ BSBF 2022



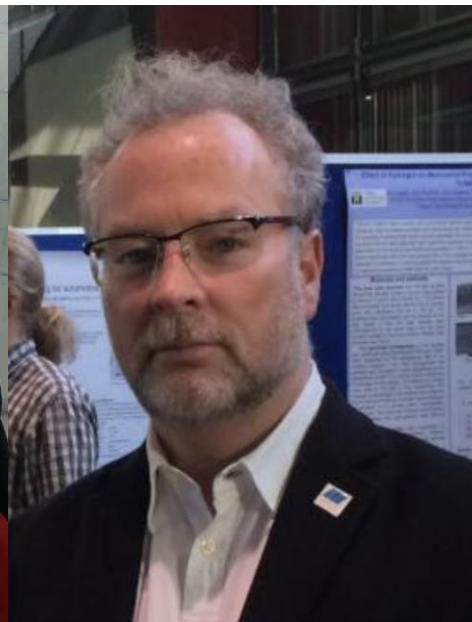
Florence Ballaguy
Purchasing



David Bazzoli
*Mechanical
components*



Giuliana Manzin
Project engineer



Duncan Atkins
Industry liaison



Virginie Guerard
Communications

THANK YOU FOR YOUR ATTENTION