Welcome!

Organizing committee: Jean-Philippe Karr, Dominique Marchand, Randolf Pohl, Eric Voutier

https://indico.mitp.uni-mainz.de/e/pren2022

⇨ Autumn '17: PREN proposal to STRONG-2020 (DM, Randolf Pohl)
⇨ February '18: selected to be part of the STRONG-2020 proposal as Workpackage 15 – Network Activity (NA) #4
⇨ **June '19**: official starting date of the STRONG-2020 project (4 yrs)

Proton charge Radius European Network

Experimental determination of the proton charge radius:

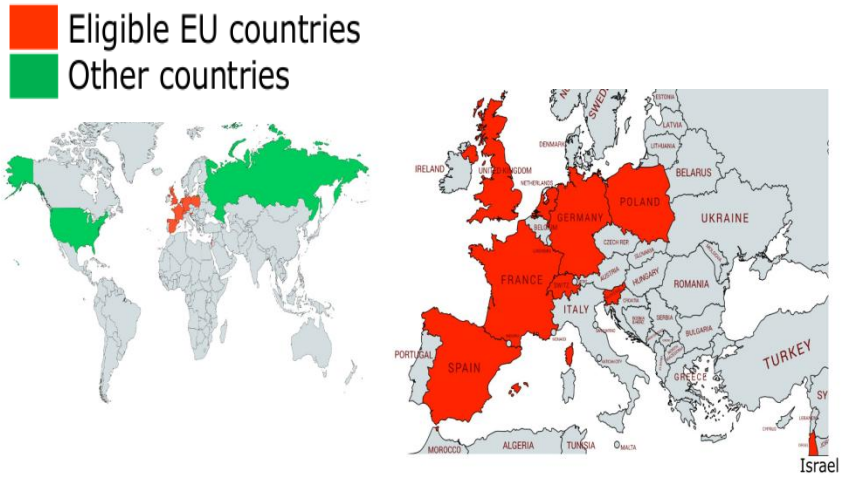
- Lepton scattering off protons, nuclear physics
- Atomic spectroscopy, atomic physics
  - Hydrogen atoms, hydrogen molecular ions
  - Muonic hydrogen, muonic ions

Motivation:

To **stimulate** and support a real **synergy** between all the physicists involved in the world-wide **experimental** and **theoretical** effort from **atomic spectroscopy** and **lepton scattering** in order **to fully understand** the persistent discrepancies and to come to a statement on the **value of the proton charge radius**.

By means of topical workshops and narrower collaborations

PREN: 22 institutions / 11 countries



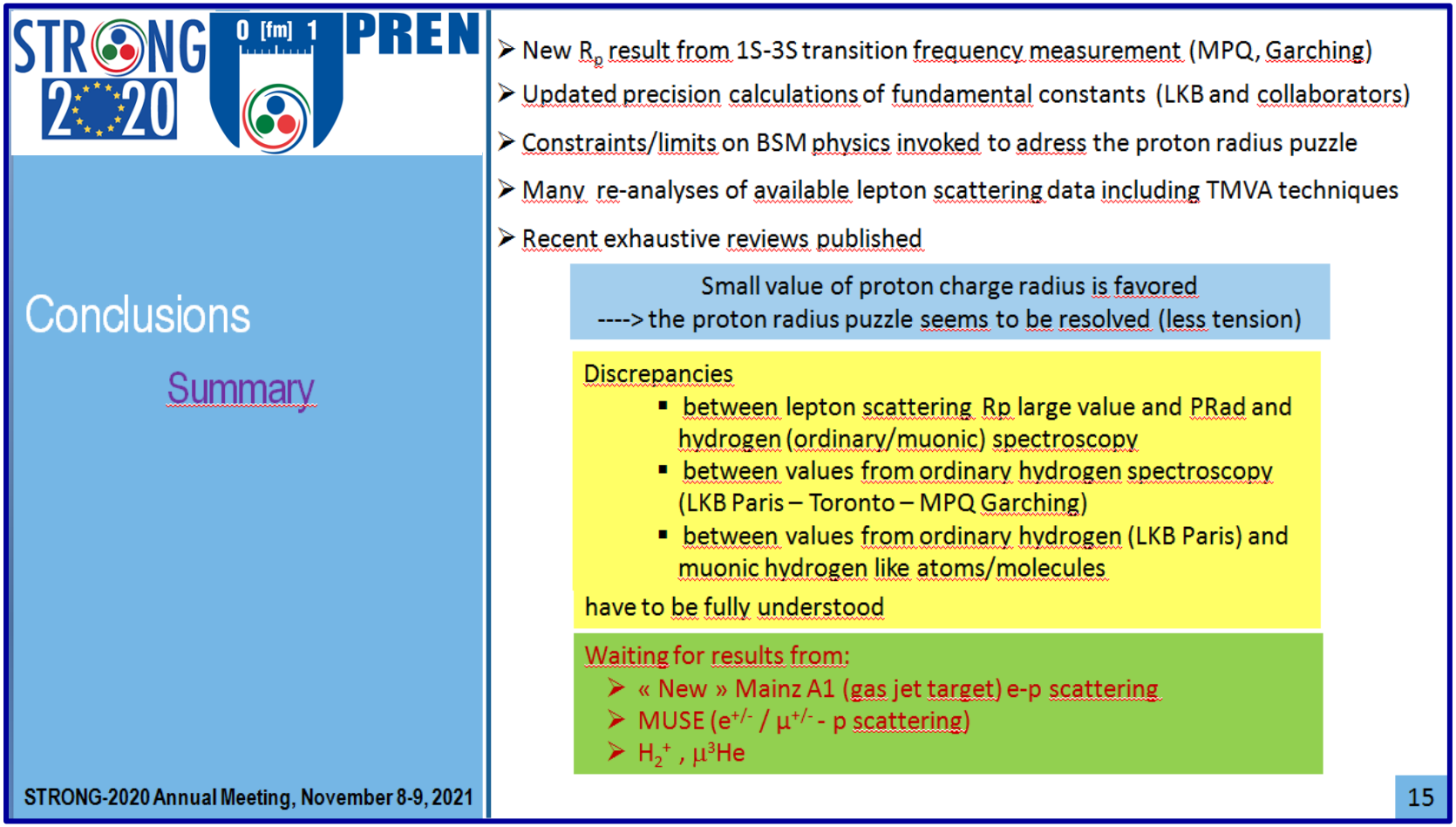
Theorists and
Experimentalists
from
Atomic and **Lepton**
Scattering Physics

- **CEA** Saclay/DRF/Irfu/Département de Physique Nucléaire, France;N. D'Hose,
- **CNRS**: France; D. Marchand (IPN Orsay) and J.-Ph. Karr (LKB, Paris), G. Quéméner (LPC Caen), H. Fonvielle (LPC Clermont-Ferrand),
- **ETH Zurich**, Switzerland; P. Crivelli,
- **Hebrew University**, Jerusalem, Israel; G. Ron,
- ***JG University Mainz***, Germany; M. Ostrick, R. Pohl, M. Vanderhaeghen,
- **JWG University** Frankfürt, Germany; R. Grisenti,
- **Jožef Stefan Institute**, Ljubljana, Slovenia; M. Mihovilovič, S. Sirca,
- **LaserLaB**, Vrije Universiteit, Amsterdam, Netherlands; W. Vassen, K. Eikema,
- **MPQ Garching**, Germany; T.W. Hänsch, Th. Udem, S. Karshenboim,
- **Paul-Scherrer-Institut (PSI)**, Villigen, Switzerland; A. Antognini,
- **Technische University** München, Garching, Germany; S. Paul,
- **Universitat Autonoma de Barcelona** / IFAE, Spain; A. Pineda,
- **University College of London**, London, UK; D. Cassidy,
- **University of Warsaw**, Warszawa, Polska; Krzysztof Pachucki.

- **Bogoliubov Laboratory of Theoretical Physics**, JINR Dubna, Russia; V. Korobov,
- **George Washington University**, Washington DC, USA; A. Afanasev,
- **CFNS, Stony Brook University & RIKEN BNL Research Center** ; J. Bernauer,
- **North Carolina A&T State University**, Greensboro, NC, USA; A. Gasparian,
- **Rutgers**, The State University of New Jersey, Piscataway, NJ, USA; R. Gilman,
- **Petersburg Nuclear Physics Institute** (PNPI), Gatchina, Russia; A. Vorobyov

Annual meetings:

- 23-25/10/2019 (Kick-off), Nantes
- 14-16/10/2020 [virtual]
- 08-10/11/2021 [hybrid], Nantes
- 17-19/10/2022, Paris



Conclusions

Perspectives

Perspectives in lepton-p scattering:

- PRES@A2 (MaMi, Mainz), 2022-
- PRM,COMPASS++/AMBER-CERN, 2022-
- ULQ2 (Japan), 2022-
- MAGIX@MESA, Mainz, 2024-
- PRad II (JLab), 2024-

Perspectives in atomic physics:

- μD
- hydrogen molecular ions
- muonium

Theoretical / analytical developements

Our network activity suffered dramatically from the pandemic situation delaying experiments and preventing us to meet in person.

- PREN meeting in person in Paris in Spring 2022

- **Investigating the opportunity for « new » collaborarive activities**

➢ **Precision Measurements and Fundamental Physics:**
The Proton Radius Puzzle and Beyond
July 23-27, 2018 – Mainz (Germany)
(~30 participants: atomic and nuclear physicists)

JOHANNES GUTENBERG UNIVERSITÄT MAINZ — Mainz Institute for Theoretical Physics

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⇨ « Nuclear charge radii and polarizabilities from laser spectroscopy of light muonic atoms » by **Randolf Pohl**

⇨ « The proton radius from electron scattering measurements (and other thoughts about form factors) » by **Jan C. Bernauer**

End of the morning session at 12:20 (sharp) – Lunch is served at **12:30** **everyday**

After lunch: hydrogen spectroscopy and lepton scattering

After the break: Transverse conference « On the meaning of measurement uncertainty »

6:30 pm - ~8pm: Welcome reception at « Le Buisson Ardent » (Bar à vins), 25 rue Jussieu

PREN2022 organizing committee

Wishes for a fruitful and enjoyable meeting