**C**zech
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# SHARE:
# *Strangeness in Hadronic and Astrophysical Systems - Toward Open Access REsources*

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**Build an open-access platform for strangeness hadron physics including:**

- *State-of-the-art* theoretical models
- Tools for data analysis
- Experimental data base

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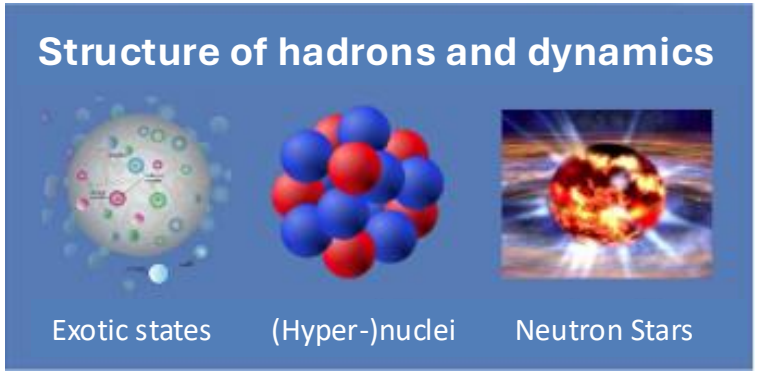
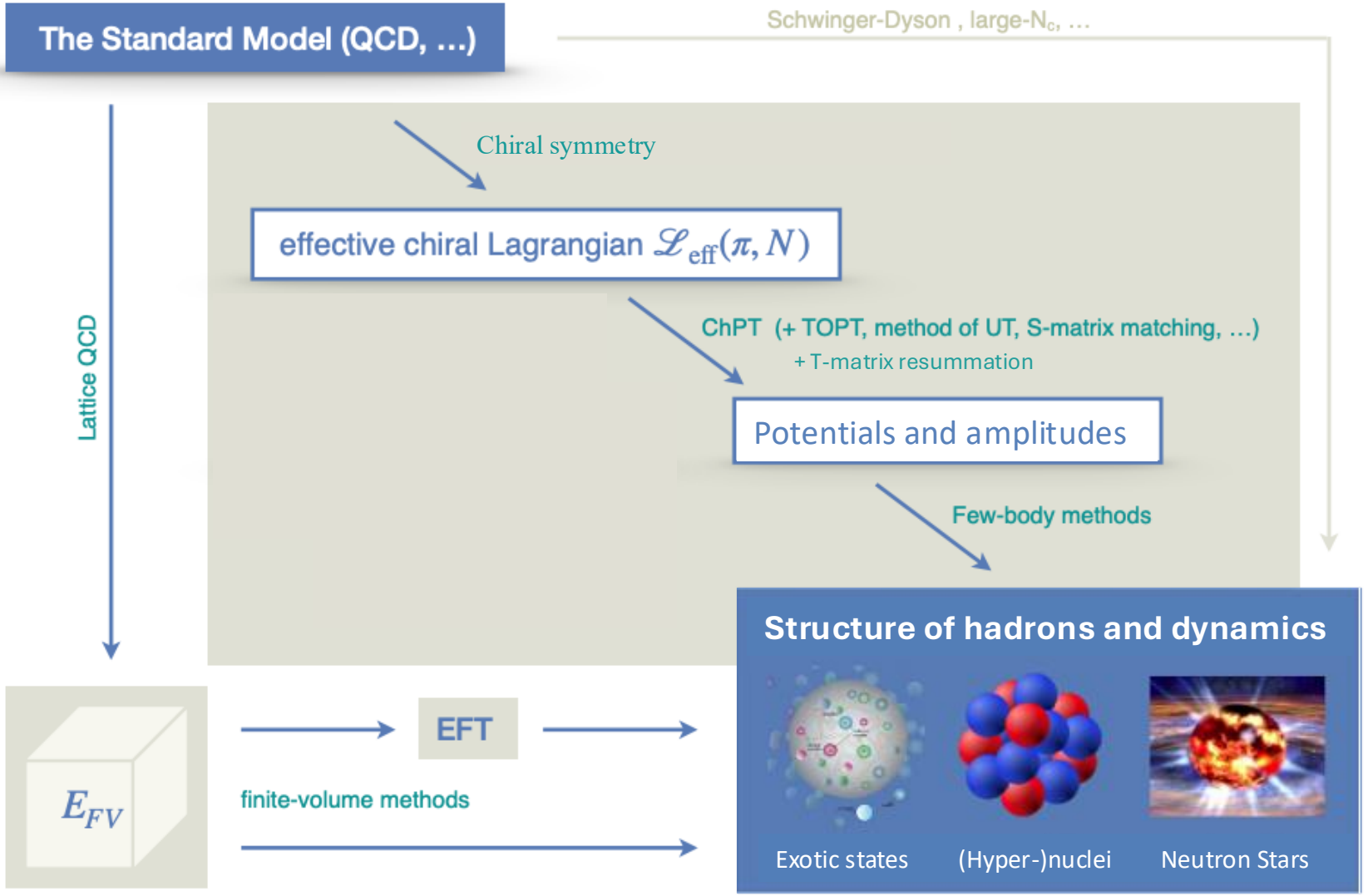
Goals:
1. accelerate progresses in the field;
2. distribute the knowledge to young researchers in the field.



# Theoretical frameworks



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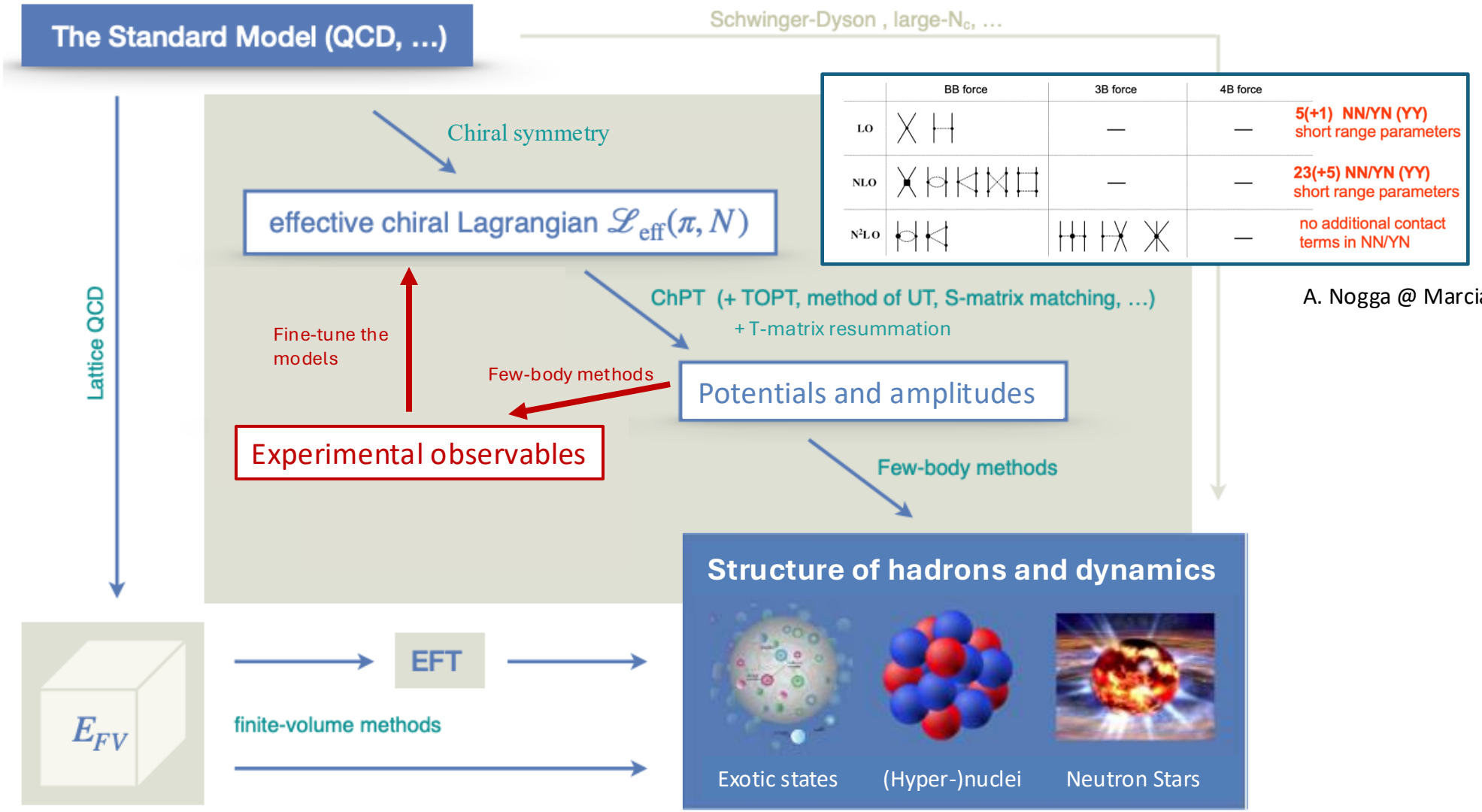



A. Nogga @ Marciana 2025

# Experimental data at the EU and worldwide facilities


Tools
- heavy ion beams
- electron beams
- photon beams
- meson beams
- antiproton beams

Methods
- missing mass studies
- invariant mass studies
- femtoscopy

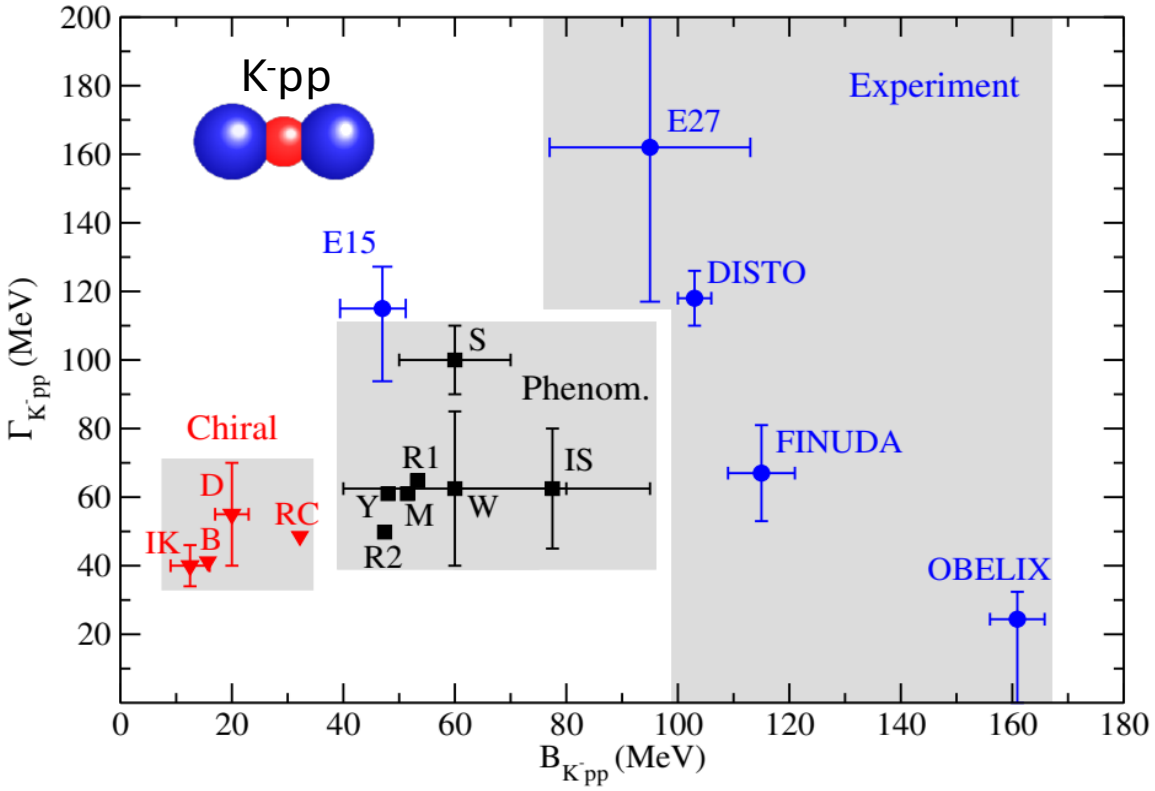
Observables
- masses
- excitation spectrum
- lifetimes
- branching ratios/cross sections
- correlation functions

# Task 1: Experimental data catalogue

- **Search for the "K⁻pp" Bound State:**
  - First confirmed experimental evidence reported by the E15 Collaboration. *E15 Coll., PRC 102 (2020), 044002*
  - Other reported signals remain subject to debate and lack consensus.

- **Need:**

  A comprehensive, up-to-date, and accessible online platform (*SHARE*) is essential to summarize and communicate the current status of experimental searches.



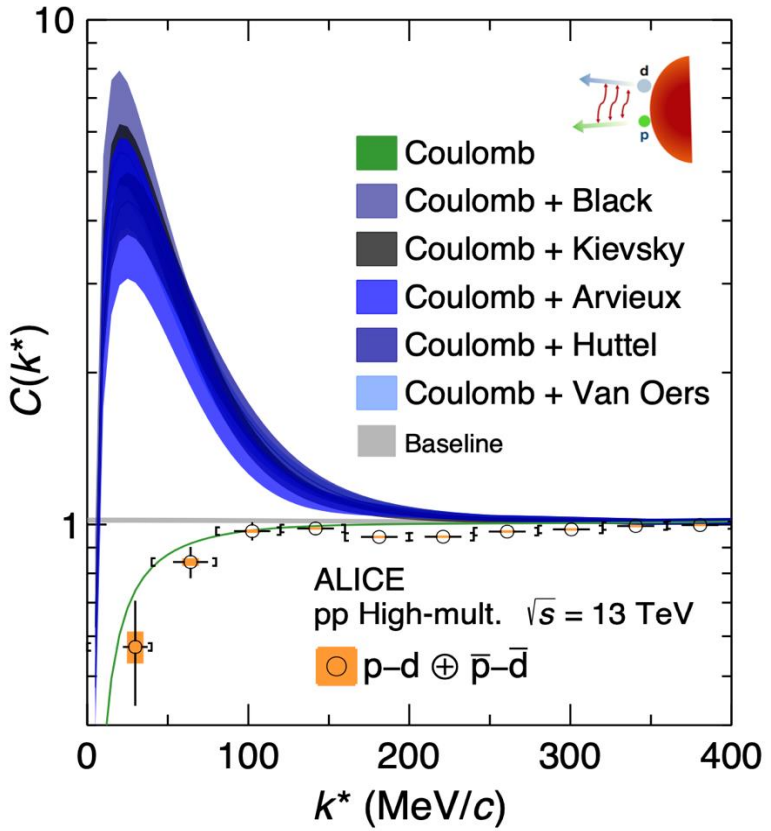

*Courtesy of J. Obertova*

# Task 2: Tools and models for the interpretation of the data

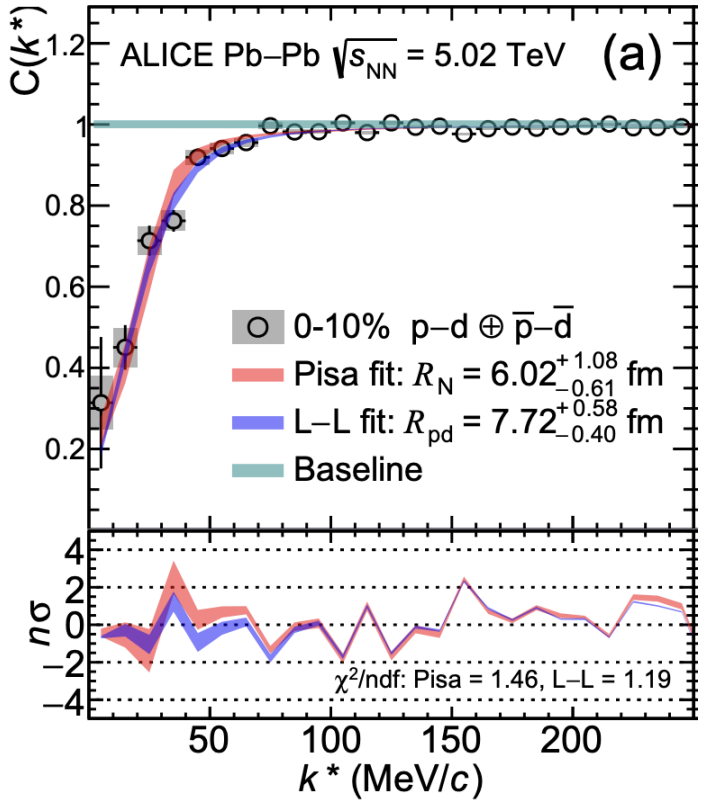
- Study of the p-d system using femtoscopy.
- Lednický model:
  - Not suitable for describing the p–d correlation function in pp collisions.
  - Provides a good approximation in Pb–Pb collisions.

**Need:**

- ➢ Effectively disseminate this information to early-career researchers.
- ➢ Establish common analysis standards to in view of complementary studies (ALICE, STAR, and HADES) and prevent inconsistent or contradictory results.




ALICE Coll. Phys. Rev. X 14, 031051 (2024)

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# Task 3: Workshops and trainings for young researchers


The project will organize workshops with two primary objectives:

- discuss the data sets to be included in the repository and the format of the data, as well as to decide the state-of-the-art interactions and models to be used for different purposes;
- targeted *training sessions* and to help both early-career and experienced researchers to stay current with the rapidly evolving landscape of computational tools and programming environments.


# Participating institutions









- CERN
- Czech Technical U. in Prague (beneficiary)
- TU Darmstadt
- INFN-LNF (beneficiary)
- INFN (Pisa, Catania)
- Instituto de Estructura de la Materia Madrid
- TU Munich
- Inst. for Physical and Chemical Research RIKEN
- Tokyo Metropolitan University

# Financial request (4 years)

**Two postdoc positions for 4 years 200 000 €**

- Workload of each postdoc: 0.5 FTE (Full Time Equivalent)
- Tasks: preparation of the online platform.

**Workshop and trainings 160 000€**

- Organise 2 annual workshops for trainings of young researchers (organization, logistics, travel support).

**Indirect costs 72 000€**

**Total requested budget: 432 000 €**

# Thank you for your attention