

# Closing *remarks*

(Don't worry, no summary!)



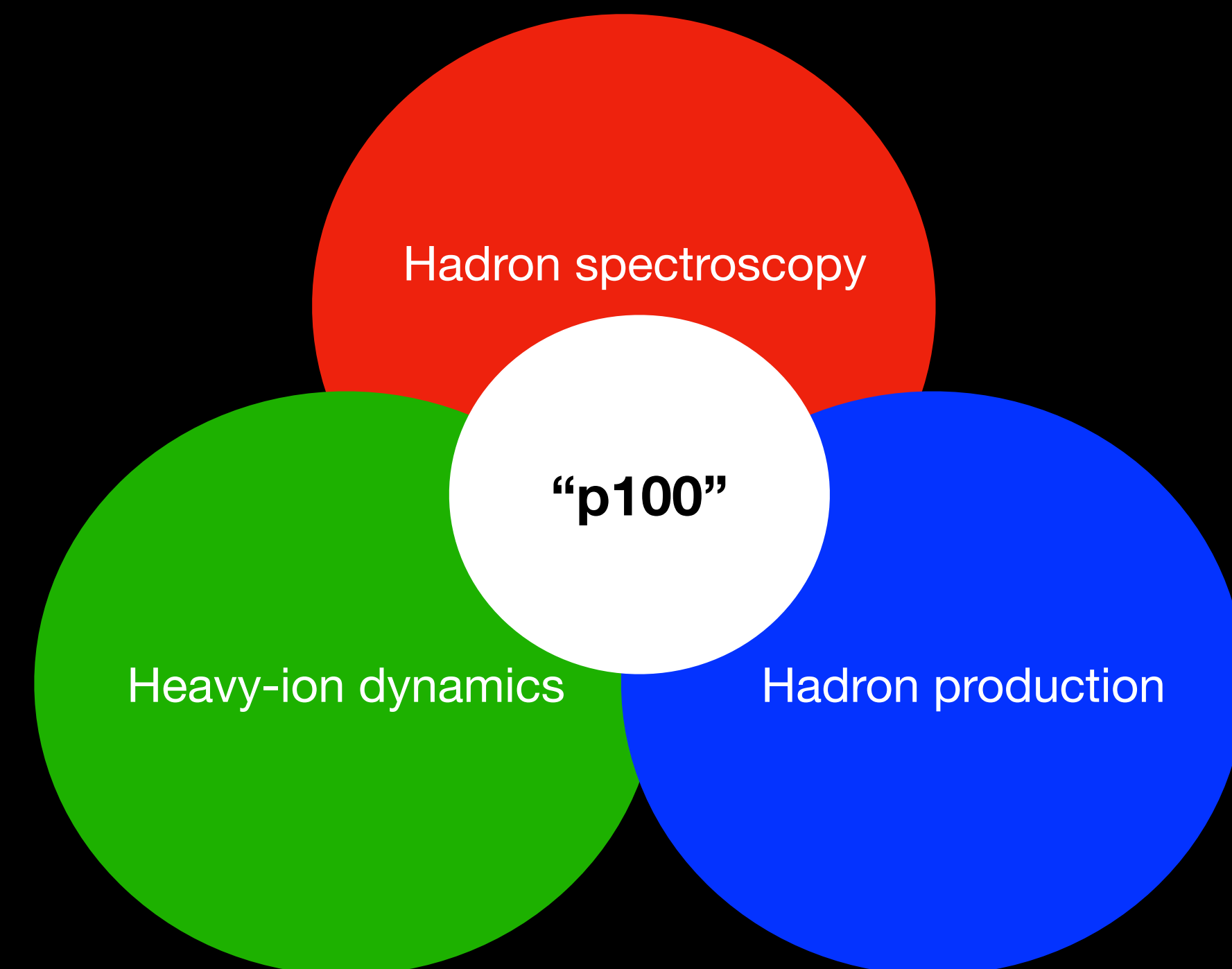


# Objectives

## ...of this workshop

- **Bring together experts** from both theory and experiment
- Form a **community** connecting the common interest among different QCD-driven scientists
- Identify **promising topics** as a basis for a proton-driven physics program
- Evaluate its **complementarity** with programs at other facilities
- Prepare towards a **white-paper**

*Ambitions from Tuesday!*



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  - Taste for more!





# A comprehensive QCD program!

QCD dynamics within baryons

Mindmap presented on Tuesday!

**Hadron structure**

Mass-radius of the proton

Intrinsic charm of the proton

E.m. transition

Form Factors of hyperons

**Hadron spectroscopy**

Emergent Hadron Mass

SU(3) baryon-like spectroscopy

**protons@SIS100**

- Strange and charm
- High intensity
- Versatile detectors
- High-rate capabilities
- ...

Polarisation sources

Near-threshold (anti) strange and charm production

Nuclear modification factors

**Heavy-ion dynamics**

Dilepton production sources

Production mechanisms axial and vector mesons

**Few-body interactions**

Femtoscopy

Charm-nucleon interactions, SU(4) dynamics

Final-state interactions using PWA

Line-shape measurements of hyperon resonances

Search for exotic form of hadrons

**Hadron production**

**Reference measurements for A+A**

**Production mechanisms of hadrons**

*Microscopic study of hadron-hadron interactions*



# Just a *few* personal *impressions*

## QCD dynamics within baryons

### Hadron structure

- State-of-the-art theoretical developments on e.m. form factor aspects, hence ...
- ...opportune to exploit high hyperon cross section in p+p for (em)TFF measurements
- V+p->V+p FSI to study IC/proton mass radius?

### Hadron spectroscopy

- Impressive data from B and photoproduction exps
- Exploit complementary p+p production mechanism...
- ...particularly in hyperon sector
- Precision lineshape measurements of baryon-like (charm+strange) resonances

- No-brainer: **pion beam** remains potential GOLD, should be pushed forward at GSI (maybe FAIR)!

### Reference measurements for A+A

- Reference measurements via p+p/A for HI interpretation extremely important, particularly for SIS100 energies!
- Isospin effects, resonance production, in-medium properties of vector mesons (line shapes), polarisation studies via dileptons, etc.

### Heavy-ion dynamics

- Femtoscopy at SIS100 advantageous: fraction of pure correlations higher than at LHC
- Controllable h-h scattering length extraction at large momentum transfer in production reactions
- Spallation-like hypernuclear production feasible? Magnetic moment study, emulsion @ CBM?

### Few-body interactions

- SIS100 energy regime promising to perform precision studies to unravel meson-baryon vs partonic degrees of freedom
- Extrapolating data from LHC to SIS energies: potentially very valuable

### Hadron production

### Microscopic study of hadron-hadron interactions

### Production mechanisms of hadrons



# Homework



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- **Participants:**

- Feedback on **your impression** of what would be **key aspects** to follow-up in the context of protons (up to 30 GeV) at SIS100.
- Indicate whether you are available to **contribute** to the foreseen **white paper**.
- concise **email** to one of the organisers will do.



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- **Organisers:**

- **Written and oral summaries** of workshop: input to various “news-channels”.
- Plan **follow-up** workshop(s) and activities....
- ...from brainstorming towards a **structured white paper**, e.g. identify key channels+observables, evaluate experimental capabilities, ...





**Many thanks for participating,  
a safe travel back home, and looking  
forward seeing you at the next occasion!**