

The **BEST** COLLABORATION Way to Success

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... is not the best way to succeed

- ▶ mostly facts about the BEST collaboration and a little bit my personal perspective
- ▶ each collaboration is different — physics needs, composition, structure, leadership ...

BEST prep

3 meetings by LOI submission:

- ▶ phase 1: declaration of intent and broader community engagement
- ▶ phase 2: know your competitions; define purpose, collaboration, leadership structure
- ▶ phase 3: set the elevator speech, assign responsibilities, who-gets-what, endorsement from external groups (experimentalists, foreign collaborators, junior faculty bridge positions)

about 2 months for proposal preparations:

- ▶ not only writing: budget negotiations, document collections, bridge position endorsement letters, many official businesses ...
- ▶ not just leadership, team work with assigned responsibilities

BEST goal

design an end-to-end theoretical framework to interpret RHIC BES experimental data

- ▶ well-defined, **focused**, single
- ▶ **timely** / urgent
- ▶ caters to large nuclear physics community (STAR@RHIC, many non-US experiments and theorists)
- ▶ **easily communicable** / understandable to other nuclear physics community

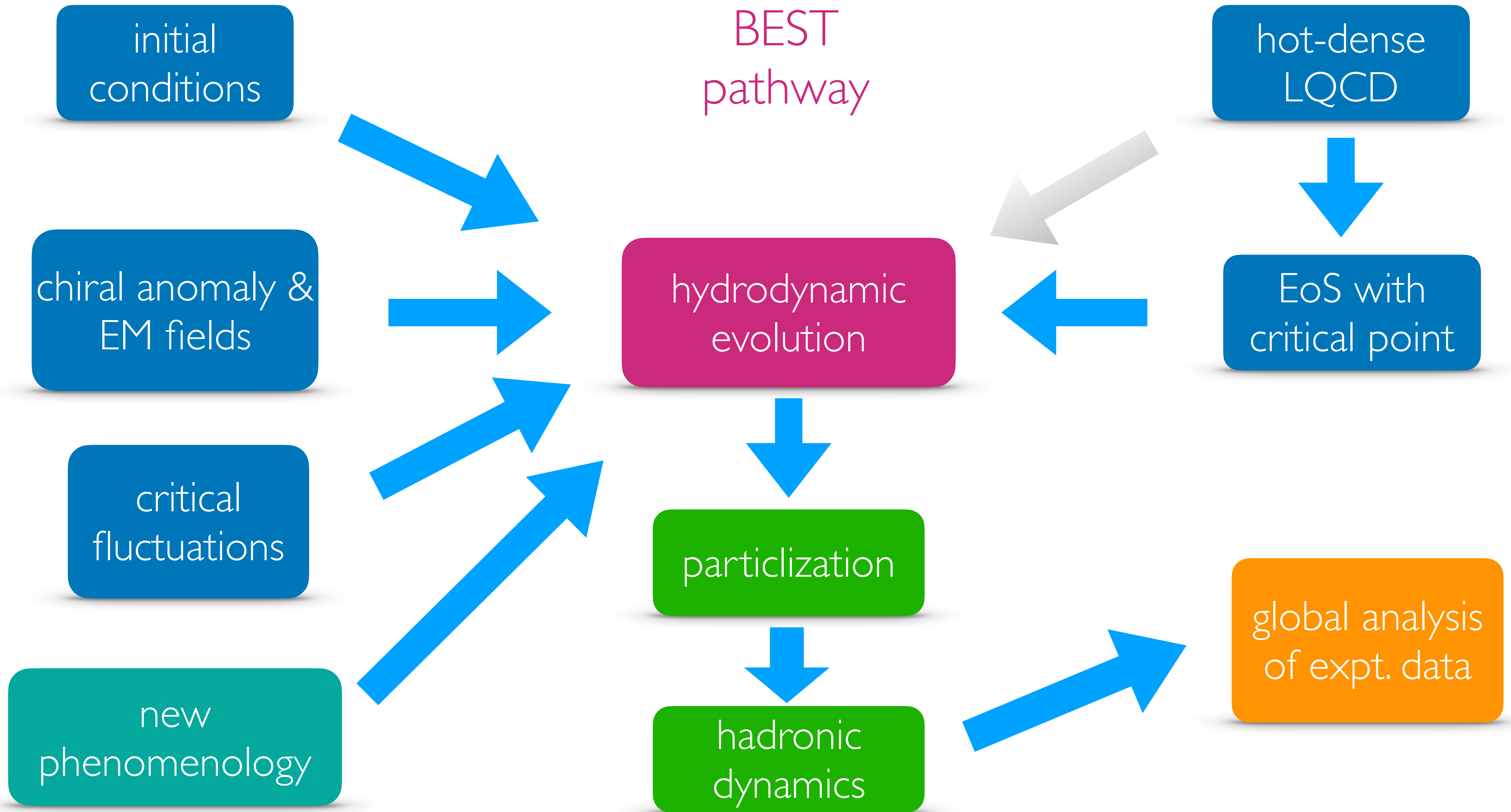
BEST collaboration

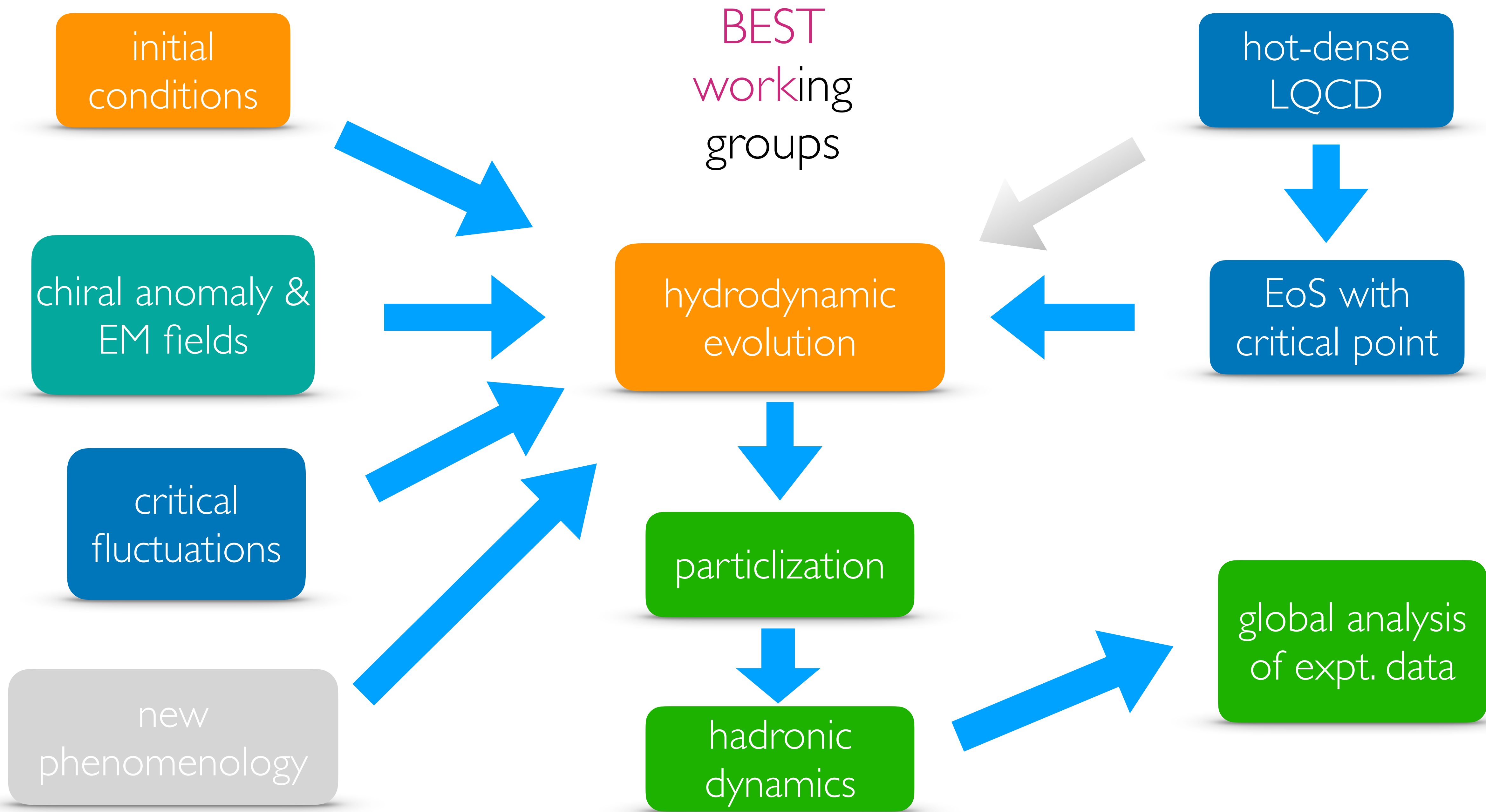
the whole is greater than the sum of its parts



bring together complementary and unique expertise to focus on a large task
that cannot be solved by any single institution

a group of people who might never have worked together otherwise





BEST practices

- ▶ **mitigate risk:** adopt multiple approaches with varying degree of complexities
- ▶ **diversify supply chain:** independent subgroups pursue different approach
- ▶ **ensure reproducibility:** test and validate results using different approaches
- ▶ **build-in integration:**
 - establish communication and processes from the get-go
 - reserve dedicated time (~1.3 years) in your timeline

BEST choices

objectives over optics:

- ▶ long-term exchanges by cutting summer schools
- ▶ travel money for student / postdocs
- ▶ implement the difficult decisions: invest in what's necessary / more productive

BEST friends

external (non-US) collaborators:

- ▶ critical component: needed expertise, supply chain for talents
- ▶ very difficult to directly fund, cannot be responsible/accountable for any deliverable
- ▶ we take responsibility: hire the talents (student/postdocs), closely collaborate through them

experimental liaisons:

- ▶ key for our goal
- ▶ seek advice, invite in meetings
- ▶ engage with them, represent in their meetings
- ▶ work and publish papers together

BEST talent management

continuity is critical:



BEST management

bottom-up:

- ▶ in-charge: postdocs & junior faculties
- ▶ senior members: advisory / editorial
- ▶ engage everyone: seek input at all levels for every decision
- ▶ transparency: communication is key

BEST pragmatic

always focus on the **big-picture** and **reorient**, if necessary:

- ▶ changed thrust midway from CME at BES to RHIC isobar runs
- ▶ BEST framework extensively used by STAR collaboration for RHIC isobar data analysis

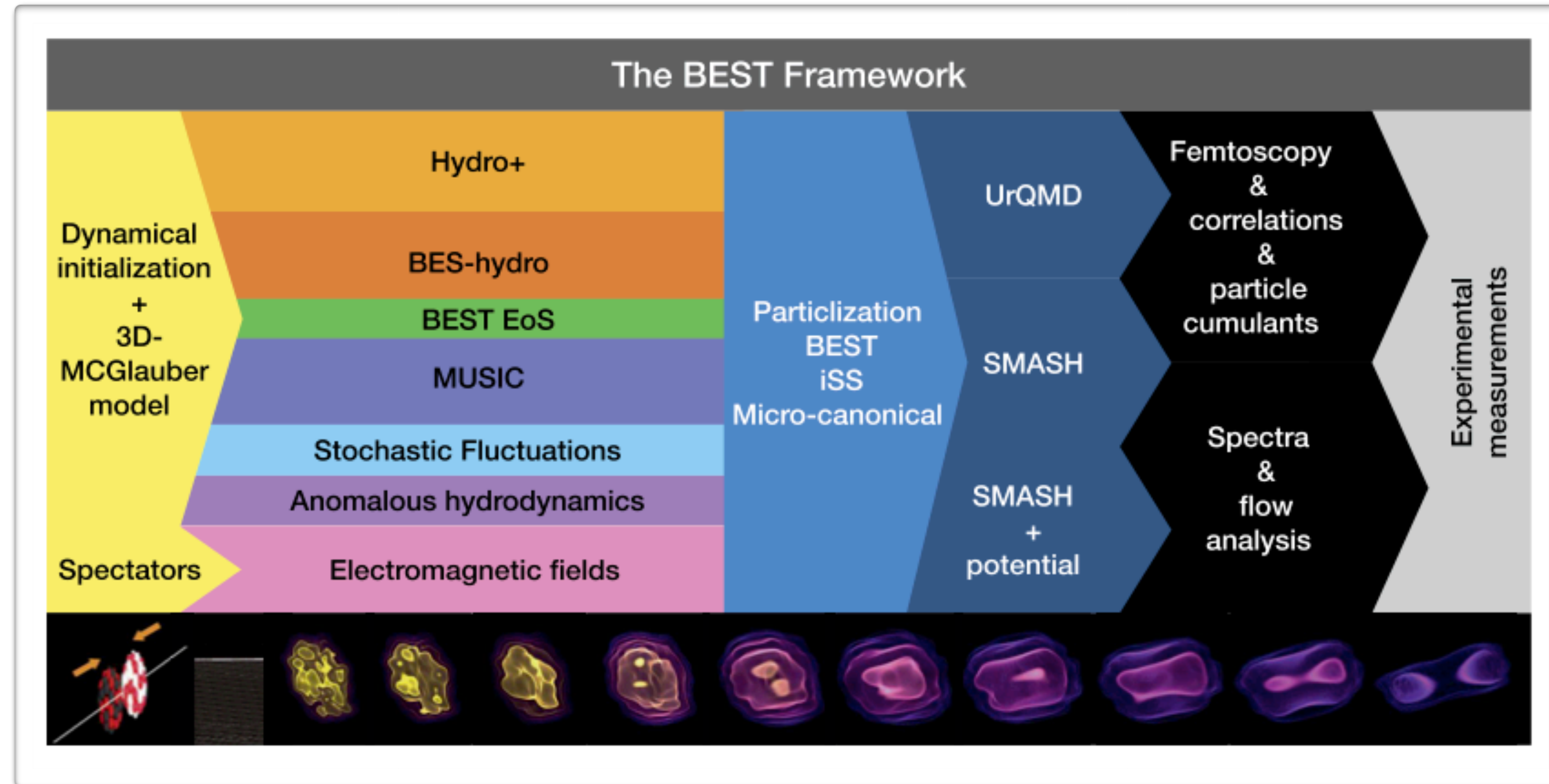
BEST dissemination

important for the whole nuclear physic community and DOE

- ▶ name & logo
- ▶ mid-term review is serious business
- ▶ presentation in NSAC
- ▶ support many workshop/conferences with travel money for students/postdocs
- ▶ encourage & support young people to give talks
- 500+ talks, 50+ plenaries, 50+ colloquia

BEST science

end-to-end framework incorporating **many new** theoretical developments



- ▶ multiple modules, mix-n-match, insert/improve alternate module
- ▶ publicly available codes: <https://bitbucket.org/bestcollaboration/>

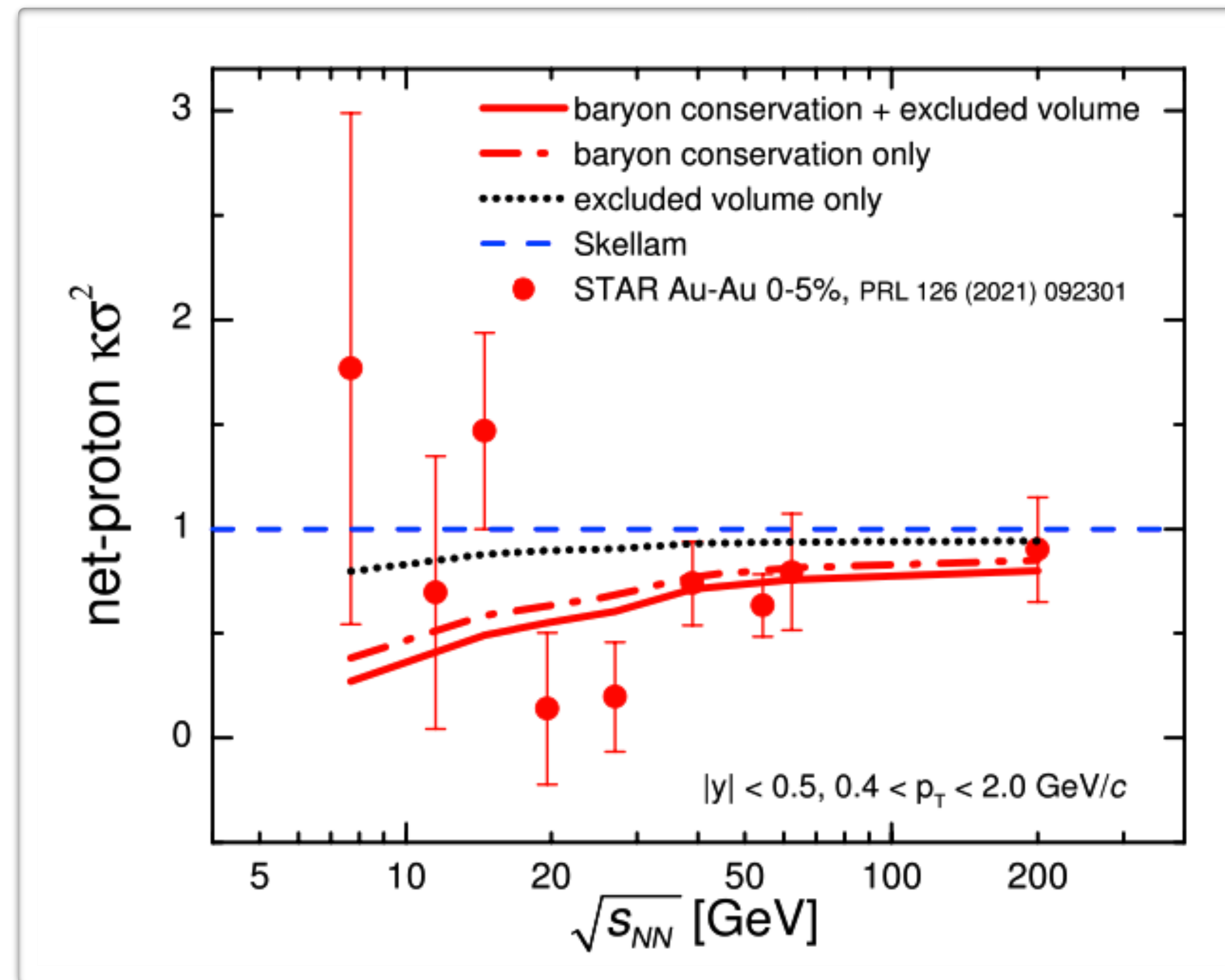


43 authors: 15 students, 5 postdocs

BEST training

■	High school students:	1
■	Undergrad students:	4
■	Master students:	1
■	Ph.D students:	22
■	Postdoctoral fellows:	13
■	Junior faculties:	2
■	DOE Early career award:	2 (Jaki Noronha-Hostler, Chun Shen)
■	PD to junior faculties:	7
■	Trainee to other industries:	6

theory calculations without a critical point compared with STAR net-proton kurtosis



Vovchenko, Koch, Shen: 2107.00163

BEST productivity

- 199 publications
- 5552 total citations
- 25 letters
- 6 reviews
- 26 papers with 50-99 citations
- 8 papers with 100+ citations

BEST wishes

be better than the BEST