*Exploring **QCD Emergent Properties** via high-energy collisions*

Study the QCD Phase Structure at High Baryon Density

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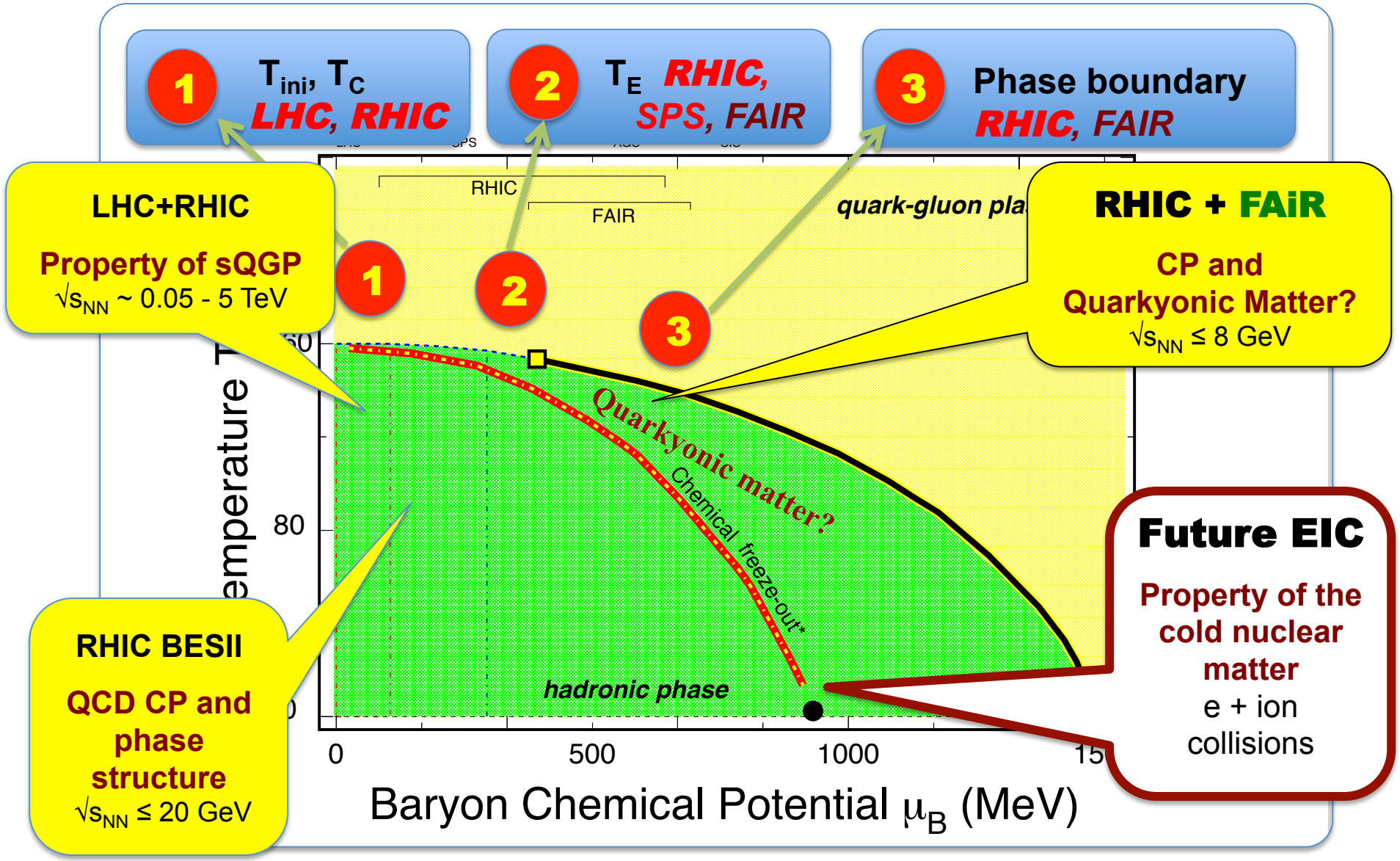
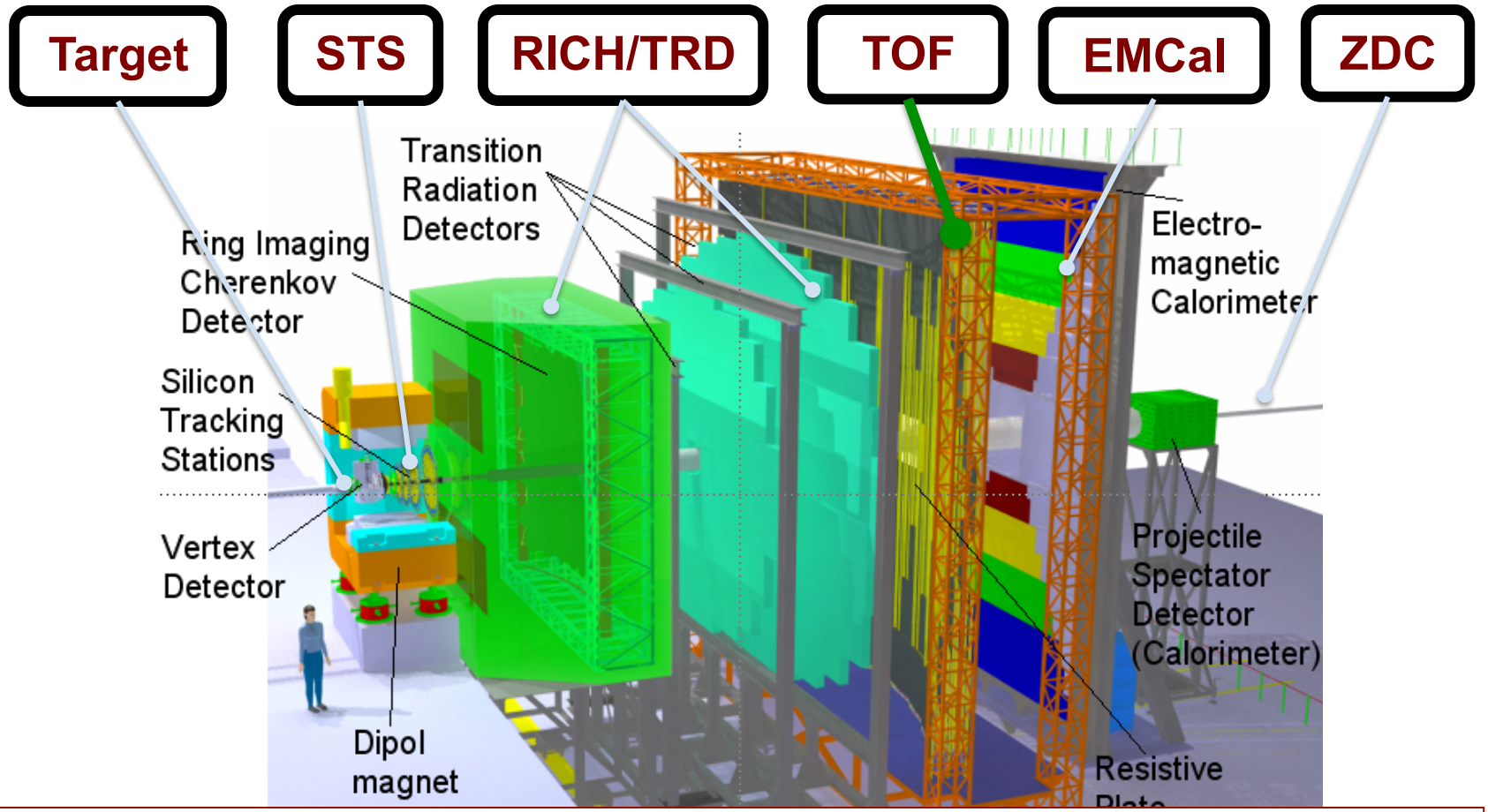
"If one does not know which harbor to go to, there is no favorable wind."

Exploring QCD Phase Structure



The CBM Experiment



FAIR: the highest intensity accelerator complex in the 21st century

Precision measurements at high baryon density region for:

(i) dileptons (***e, μ***); (ii) high order baryon correlations; (iii) flavor productions (***s, c***)

Be Part of CBM!

CBM Experiment at FAIR:

1) Next generation fixed-target high rate experiment
2) $\sqrt{s_{NN}}$ = **2 – 5** (– 8) GeV (450 ≤ μ_B ≤ 700 MeV)
3) 2019: FAIR accelerator / CBM experiment commissioning
4) Natural continuation of RHIC BESII towards higher net-baryon density region. Key physics topics are:
   - CP and phase boundary: *confirm RHIC BESII findings*
   - Quarkyonic matter (?)
   - Chiral properties and more …

"FAIR will start its operation in the year of 2019. US scientists should take advantage of unique opportunities provided by FAIR, as they have at the LHC and at other facilities in the world. Especially, for understanding of the QCD phase diagram, studies at the high baryon density region, within CBM's reach, are required. The US should undertake timely investment in that program."