

XXXVI International Workshop on High Energy
Physics "Strong Interactions: Experiment, Theory,
Phenomenology"
Discussion session

Discussion leaders: Oleg Teryaev. Vitaly Bornyakov

24.07.2024

List of talks I :

- **Roman Zhokhov** (IHEP and IZMIRAN)
Some aspects of QC_2D and QCD phase diagrams
- **Viktor Braguta** (JINR, Dubna)
Lattice study of rotating QCD properties
- **Manfried Faber** (Tech. U., Atominst., Vienna)
What do we know about the confinement mechanism?
- **Dmitry Voskresensky** (JINR, Dubna)
Pion degrees of freedom in nuclear matter from 1971 till tomorrow
- **Petr Parfenov** (JINR, Dubna)
Physics with flows and correlations at MPD, NICA

List of talks II :

– **Andrei Kataev** (INR, Moscow)

On the fine structure of the massless PT QCD series representations

– **Eugene Levichev** (Budker INP, Novosibirsk)

Perspective of a Z factory

– **Andrei Arbuzov** (JINR, Dubna)

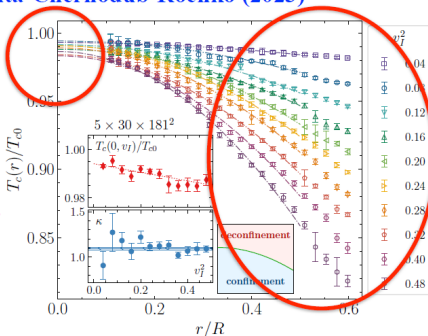
Physics at a Z factory

vs. Lattice

Braguta-Chernodub-Roenko (2023)



Qualitatively
inconsistent!
Spin missing?



Consistent
with pQCD

July 17, 2024 @ XQCD Lanzhou

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Figure: From the talk by K. Fukushima at XQCD 2024

- Comparison with other studies (lattice, non-lattice)
- How size of the system R is defined ?
- Can you be sure that properties of QCD with light quarks are similar to those of gluodynamics and QCD with heavy quarks ?
- When computing I_0 do you consider full lattice volume or only interior (where bc effect are absent) ?

- In gluodynamics it was demonstrated many times that vortices (as well as monopoles) are related to (or responsible for) both confinement and chiral symmetry breaking. What about QCD with light quarks ?
- Same question for nonzero quark chemical potential. In SU(2) QCD the two transitions are well separated. How do vortices react on these separated transitions?
- In case of Abelian projection there is a gauge invariant procedure to determine the Abelian gauge field which is equivalent to MA gauge Abelian gauge field.
Kondo et al.,
Cho decomposition
What about gauge invariant approach to vortices?

Remark:

In SU(3) gluodynamics Abelian (as well as monopole) dominance requires to choose specific Gribov copies obtained with RO algorithm. $\sigma_{ab}/\sigma \approx 0.8$ if SA algorithm is applied.