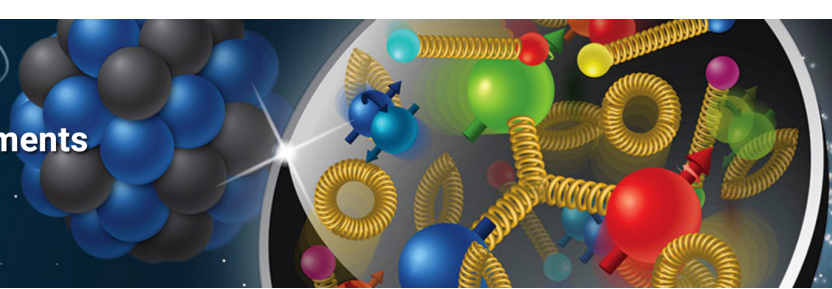


Symposium on Extreme Quantum Matter from Electron Ion Collider to Tabletop Experiments

Hosted by Brookhaven National Laboratory
August 31–September 2, 2023



Location: Large Seminar Room, Physics Dept (Bldg 510A), BNL

Thursday, August 31

Haiyan Gao (BNL) : *Welcome and opening remarks (8:50~9)*

Session I (9:00~10:30) Chair: Peter Petreczky (BNL)

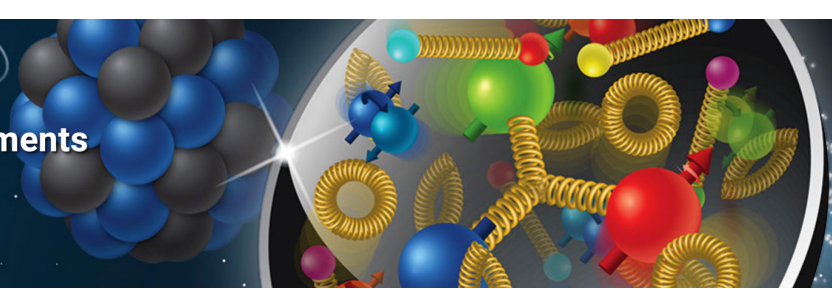
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|---------------|--|
| 9:00 – 9:30 | Helmut Satz (Bielefeld Univ)
<i>“The evolving quarkonium puzzle”</i> |
| 9:30 – 10:00 | Evgeny Levin (Tel Aviv U & UTFSM) [REMOTE]
<i>“The entropy of produced gluons in QCD”</i> |
| 10:00 – 10:30 | Abhay Deshpande (Stony Brook/BNL)
<i>“Entanglement at the EIC”</i> |
| 10:30 – 11:00 | Coffee Break |

Session II (11:00~12:30) Chair: Jinfeng Liao (Indiana Univ)

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|---------------|---|
| 11:00 – 11:30 | Larry McLerran (UW/INT)
<i>“Stiff equations of state at zero temperature from free nucleons, quark-hadron duality, and Fermi statistics”</i> |
| 11:30 – 12:00 | Robert Pisarski (BNL)
<i>“How the axial anomaly shows up for heterochiral mesons with $J=1$ and 2”</i> |
| 12:00 – 12:30 | Francesco Becattini (Florence Univ)
<i>“Quantum corrections to free streaming in cosmology”</i> |
| 12:30 – 14:00 | Lunch Break |

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Session III (14:00~16:00) Chair: George Sterman (Stony Brook/YITP)

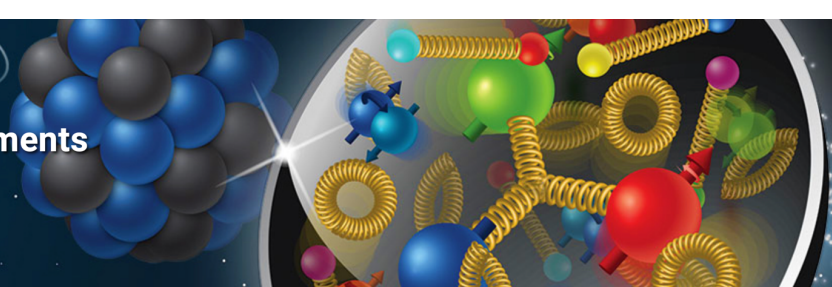
- 14:00 – 14:30 Raju Venugopalan (BNL) [REMOTE]
“The Black Hole CGC double copy: Computing gravitational radiation from close hyperbolic encounters of primordial Black Holes”
- 14:30 – 15:00 Yuri Kovchegov (Ohio State Univ)
“Proton spin at small x : speculations on the spin puzzle and on evolution beyond the leading double logarithm”
- 15:00 – 15:30 Zein-Eddine Meziani (ANL)
“Gluonic gravitational form factors of the proton from JLab to EIC”
- 15:30 – 16:00 Yoshitaka Hatta (BNL/RBRC)
“Physics of the gravitational form factors”
- 16:00 – 16:30 Coffee Break

Session IV (16:30~18:00) Chair: Jacobus Verbaarschot (Stony Brook)

- 16:30 – 17:00 Zhangbu Xu (BNL)
“Experimental findings on the simplest QCD topology from RHIC BES-I and isobar data”
- 17:00 – 17:30 Vladimir Korepin (Stony Brook/YITP)
“Entanglement entropy production in BFKL”
- 17:30 – 18:00 Ismail Zahed (Stony Brook)
“Entanglement in high energy physics”

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Friday, September 1

Session V (9:00~10:30) Chair: Kenta Shigaki (Hiroshima Univ)

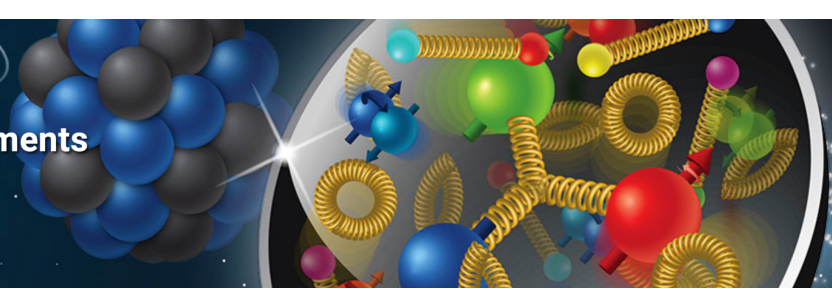
- 9:00 – 9:30 Edward Shuryak (Stony Brook)
“Bridging a gap between hadronic spectroscopy and partonic observables”
- 9:30 – 10:00 Gerald Dunne (U Conn)
“Bridging the gap: mining perturbation theory for non-perturbative information”
- 10:00 – 10:30 Kirill Tuchin (Iowa State)
“Quantum tomography of chiral media”
- 10:30 – 11:00 Coffee Break

Session VI (11:00~12:30) Chair: Kenji Fukushima (Univ Tokyo)

- 11:00 – 11:30 Qiang Li (BNL)
“Topological phase transitions in quantum materials and chirality enabled quantum information systems”
- 11:30 – 12:00 Ho-Ung Yee (UIC)
“Spectral theorems for generalized Weyl fermions: A quantum mechanical view on the chiral magnetic effect”
- 12:00 – 12:30 Kazuki Ikeda (Stony Brook)
“Laptop experiments on chiral dynamics and entanglement”
- 12:30 – 14:00 Lunch Break

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Session VII (14:00~16:00) Chair: James H Thomas (LBNL)

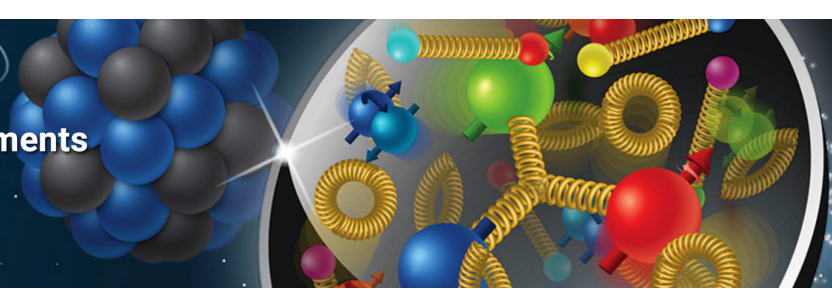
- 14:00 – 14:30 Sergei Voloshin (Wayne State)
“In search of local parity violation”
- 14:30 – 15:00 Huan Zhong Huang (UCLA)
*“Experimental perspectives on CME searches
in heavy-ion collisions”*
- 15:00 – 15:30 Xin-Nian Wang (LBNL)
“Spinning through decades of heavy-ion collisions”
- 15:30 – 16:00 Coffee Break

Session VIII (16:00~17:30) Chair: Derek Teaney (Stony Brook)

- 16:00 – 16:30 Mikhail Stephanov (UIC)
“Hydro+”
- 16:30 – 17:00 Gokce Basar (UNC)
“Non-gaussian hydrodynamic fluctuations”
- 17:00 – 17:30 Adrien Florio (BNL)
*“News from magnetohydrodynamics and
anomalous transport”*

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Saturday, September 2

Session IX (9:00~10:30) Chair: Peter Petreczky (BNL)

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| 9:00 – 9:30 | Alexei Tsvelik (BNL)
<i>“Condensed matter ideas for quarkyonic matter”</i> |
| 9:30 – 10:00 | Alexandre Abanov (SBU/Simons Center)
<i>“On the variational principle of anomalous fluid dynamics”</i> |
| 10:00 – 10:30 | Karl Landsteiner (IFT-UAM/CSIC) [REMOTE]
<i>“Chiral butterflies”</i> |
| 10:30 – 11:00 | Kenji Fukushima (Univ Tokyo)
<i>“Light-driven chirality”</i> |

*Final remarks and
symposium adjournment
(11:00~11:15)*