

# Publication List

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**Abstract.** The publication list is split into three main parts:

- Review Papers
- Research Articles
- Contributions to conferences

## 1. Review Papers

- **“INFN What Next : Ultra-relativistic Heavy-Ion Collisions”**  
A. Dainese *et al.*.  
arXiv:1602.04120 [nucl-ex]  
Frascati Phys. Ser. **62** (2016)
- **“Crystalline color superconductors”**  
R. Anglani, R. Casalbuoni, M. Ciminale, N. Ippolito, R. Gatto, M. Mannarelli and M. Ruggieri.  
arXiv:1302.4264 [hep-ph]  
Rev. Mod. Phys. **86**, 509 (2014)
- **“Quark Matter in a Strong Magnetic Background”**  
R. Gatto and M. Ruggieri.  
arXiv:1207.3190 [hep-ph]  
Lect. Notes Phys. **871**, 87 (2013)

## 2. Research Articles

- M. Ruggieri, Pooja, J. Prakash and S. K. Das, **“Memory effects on energy loss and diffusion of heavy quarks in the quark-gluon plasma,”** Phys. Rev. D **106**, no.3, 034032 (2022) doi:10.1103/PhysRevD.106.034032 [arXiv:2203.06712 [hep-ph]].
- Z. Y. Lu, J. F. Xu, X. J. Wen, G. X. Peng and M. Ruggieri, **“Landau quantization and spin polarization of cold magnetized quark matter,”** Chin. Phys. C **46**, 6 (2022) doi:10.1088/1674-1137/ac5513 [arXiv:2202.07197 [hep-ph]].
- P. Khowal, S. K. Das, L. Oliva and M. Ruggieri, **“ Heavy quarks in the early stage of high energy nuclear collisions at RHIC and LHC: Brownian motion versus diffusion in the evolving Glasma,”** Eur. Phys. J. Plus **137**, no.3, 307 (2022) doi:10.1140/epjp/s13360-022-02517-w [arXiv:2110.14610 [hep-ph]].
- S. S. Wan and M. Ruggieri, **Chiral phase transitions of helical matter,** Phys. Rev. D **103**, no.9, 094030 (2021) doi:10.1103/PhysRevD.103.094030 [arXiv:2012.12577 [hep-ph]].
- S. S. Wan, D. Li, B. Zhang and M. Ruggieri, **Finite Size Effects on the Chiral Phase Transition of Quantum Chromodynamics,** [arXiv:2012.05734 [hep-ph]].
- J. H. Liu, S. K. Das, V. Greco and M. Ruggieri, **Ballistic diffusion of heavy quarks in the early stage of relativistic heavy ion collisions at RHIC and the LHC,** Phys. Rev. D **103**, no.3, 034029 (2021) doi:10.1103/PhysRevD.103.034029 [arXiv:2011.05818 [hep-ph]].
- P. Castorina, D. Lanteri and M. Ruggieri, **Fluctuations and thermodynamic geometry of the chiral phase transition,** Phys. Rev. D **102**, 116022 (2020)

- doi:10.1103/PhysRevD.102.116022 [arXiv:2010.03310 [hep-ph]].
- M. Y. Jamal, S. K. Das and M. Ruggieri, **Energy Loss Versus Energy Gain of Heavy Quarks in a Hot Medium**, Phys. Rev. D **103**, no.5, 054030 (2021) doi:10.1103/PhysRevD.103.054030 [arXiv:2009.00561 [nucl-th]].
  - M. N. Chernodub, A. Cortijo and M. Ruggieri, **Spontaneous non-Hermiticity in the Nambu–Jona-Lasinio model**, Phys. Rev. D **104**, no.5, 056023 (2021) doi:10.1103/PhysRevD.104.056023 [arXiv:2008.11629 [hep-th]].
  - M. Jia, J. Liu, H. Zhang and M. Ruggieri, **Fluctuations of topological charge and chiral density in the early stage of high energy nuclear collisions**, Phys. Rev. D **103**, no.1, 014026 (2021) doi:10.1103/PhysRevD.103.014026 [arXiv:2006.01090 [hep-ph]].
  - M. Ruggieri, M. N. Chernodub and Z. Y. Lu, **Topological susceptibility, divergent chiral density and phase diagram of chirally imbalanced QCD medium at finite temperature**, Phys. Rev. D **102**, no.1, 014031 (2020) doi:10.1103/PhysRevD.102.014031 [arXiv:2004.09393 [hep-ph]].
  - J. H. Liu, S. Plumari, S. K. Das, V. Greco and M. Ruggieri, **Diffusion of heavy quarks in the early stage of high-energy nuclear collisions at energies available at the BNL Relativistic Heavy Ion Collider and at the CERN Large Hadron Collider**, Phys. Rev. C **102**, no.4, 044902 (2020) doi:10.1103/PhysRevC.102.044902 [arXiv:1911.02480 [nucl-th]].
  - Z. Y. Lu, C. J. Xia and M. Ruggieri, **Thermodynamics and susceptibilities of isospin imbalanced QCD matter**, Eur. Phys. J. C **80**, no.1, 46 (2020) doi:10.1140/epjc/s10052-020-7614-6 [arXiv:1907.11497 [hep-ph]].
  - B. Zhang, S. S. Wan and M. Ruggieri, **“Thermodynamic Geometry of the Quark-Meson Model**, Phys. Rev. D **101**, no.1, 016014 (2020) doi:10.1103/PhysRevD.101.016014 [arXiv:1907.11781 [hep-ph]].
  - M. Ruggieri, M. Frasca and S. K. Das, **“Classical model for diffusion and thermalization of heavy quarks in a hot medium: memory and out-of-equilibrium effects”** Chin. Phys. C **43**, no.9, 094105 (2019) doi:10.1088/1674-1137/43/9/094105 [arXiv:1903.11302 [nucl-th]].
  - Y. Sun, G. Coci, S. K. Das, S. Plumari, M. Ruggieri and V. Greco, **“Impact of Glasma on heavy quark observables in nucleus-nucleus collisions at LHC”** arXiv:1902.06254 [nucl-th].
  - Z. Y. Lu and M. Ruggieri, **“Effect of the chiral phase transition on axion mass and self-coupling”** arXiv:1811.05102 [hep-ph].
  - M. Ruggieri and S. K. Das, **“Cathode tube effect: Heavy quarks probing the glasma in p -Pb collisions”** Phys. Rev. D **98**, no. 9, 094024 (2018) doi:10.1103/PhysRevD.98.094024 [arXiv:1805.09617 [nucl-th]].
  - **“Pressure evolution and flux tubes formation in the Glasma produced in high energy nuclear collisions”**

M. Ruggieri, L. Oliva, G. X. Peng and V. Greco.

DOI: 10.1103/PhysRevD.97.076004

Phys.Rev. D97 (2018) no.7, 076004

arXiv:1707.07956 [nucl-th]

- **“Photons from the Early Stages of Relativistic Heavy Ion Collisions”**

L. Oliva, M. Ruggieri, S. Plumari, F. Scardina, G. X. Peng and V. Greco.

arXiv:1703.00116 [nucl-th]

DOI:10.1103/PhysRevC.96.014914

Phys. Rev. C **96**, no. 1, 014914 (2017)

- **“Effect of pre-equilibrium phase on  $R_{AA}$  and  $v_2$  of heavy quarks in heavy ion collisions”**

S. K. Das, M. Ruggieri, F. Scardina, S. Plumari and V. Greco.

arXiv:1701.05123 [nucl-th]

DOI:10.1088/1361-6471/aa815a

J. Phys. G **44**, no. 9, 095102 (2017)

- **“Quark mass scaling and properties of light-quark matter”**

Z. Y. Lu, G. X. Peng, S. P. Zhang, M. Ruggieri and V. Greco.

DOI:10.1007/s41365-016-0148-9

Nucl. Sci. Tech. **27**, no. 6, 148 (2016).

- **“Chiral phase transition of quark matter in the background of parallel electric and magnetic fields”**

M. Ruggieri and G. X. Peng.

DOI:10.1007/s41365-016-0139-x

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- **“Influence of chiral chemical potential, parallel electric, and magnetic fields on the critical temperature of QCD”**

M. Ruggieri, Z. Y. Lu and G. X. Peng.

arXiv:1608.08310 [hep-ph]

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- **“Chiral Relaxation Time at the Crossover of Quantum Chromodynamics”**

M. Ruggieri, G. X. Peng and M. Chernodub.

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- **“Quark matter in a parallel electric and magnetic field background: Chiral phase transition and equilibration of chiral density”**

M. Ruggieri and G. X. Peng.

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Phys. Rev. D **93**, no. 9, 094021 (2016)

- **“Chiral Symmetry Restoration with a Chiral Chemical Potential: the Role of Momentum Dependent Quark Self-energy”**

M. Ruggieri and G. X. Peng.

arXiv:1602.05250 [hep-ph]

- **“Critical Temperature of Chiral Symmetry Restoration for Quark Matter with a Chiral Chemical Potential”**

M. Ruggieri and G. X. Peng.

arXiv:1602.03651 [hep-ph]

- **“Modeling early stages of relativistic heavy ion collisions: Coupling relativistic transport theory to decaying color-electric flux tubes”**

M. Ruggieri, A. Puglisi, L. Oliva, S. Plumari, F. Scardina and V. Greco.

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- **“Quarks production in the quark-gluon plasma created in relativistic heavy ion collisions”**

M. Ruggieri, S. Plumari, F. Scardina and V. Greco.

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- **“Heavy quark diffusion in the pre-equilibrium stage of heavy ion collisions”**

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- **“Relativistic Boltzmann transport approach with Bose-Einstein statistics and the onset of gluon condensation”**

F. Scardina, D. Perricone, S. Plumari, M. Ruggieri and V. Greco.

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- **“Polyakov loop and gluon quasiparticles: a self-consistent approach to Yang-Mills thermodynamics”**

P. Alba, W. Alberico, M. Bluhm, V. Greco, C. Ratti and M. Ruggieri.

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- **“Critical Endpoint and Inverse Magnetic Catalysis for Finite Temperature and Density Quark Matter in a Magnetic Background”**

M. Ruggieri, L. Oliva, P. Castorina, R. Gatto and V. Greco.

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- **“Thermalization, Isotropization and Elliptic Flow from Nonequilibrium Initial Conditions with a Saturation Scale”**  
M. Ruggieri, F. Scardina, S. Plumari and V. Greco.  
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- **“Thermodynamics of the Quark-Gluon Plasma in Terms of Quasiparticles and Polyakov Line Condensates”**  
L. Oliva, P. Castorina, V. Greco and M. Ruggieri.  
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- **“Renormalized vs. Nonrenormalized Chiral Transition in a Magnetic Background”**  
M. Ruggieri, M. Tachibana and V. Greco.  
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- **“QCD phase diagram at finite baryon and isospin chemical potentials in Polyakov loop extended quark meson model with vector interaction”**  
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- **“Polyakov Loop and Gluon Quasiparticles in Yang-Mills Thermodynamics”**  
M. Ruggieri, P. Alba, P. Castorina, S. Plumari, C. Ratti and V. Greco.  
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- **“Deconfinement vs. chiral symmetry and higher representation matter”**  
T. Kahara, M. Ruggieri and K. Tuominen.  
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R. Gatto and M. Ruggieri.  
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M. Ruggieri.  
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- **“Possibility of QCD critical point sweep during black hole formation”**  
A. Ohnishi, H. Ueda, T. Z. Nakano, M. Ruggieri and K. Sumiyoshi.  
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- **“Collective modes in the color flavor locked phase”**  
R. Anglani, M. Mannarelli and M. Ruggieri.  
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R. Gatto and M. Ruggieri.  
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- **“Dressed Polyakov loop and phase diagram of hot quark matter under magnetic field”**  
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  - **“Chiral magnetic effect in the PNJL model”**  
K. Fukushima, M. Ruggieri and R. Gatto.  
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  - **“Spinning Supersymmetric Q-balls”**  
L. Campanelli and M. Ruggieri.  
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  - **“Neutral quark matter in a Nambu-Jona Lasinio model with vector interaction”**  
H. Abuki, R. Gatto and M. Ruggieri.  
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  - **“On the neutrality issue in the Polyakov-loop NJL model”**  
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  - **“The Fate of pion condensation in quark matter: From the chiral to the real world”**  
H. Abuki, R. Anglani, R. Gatto, M. Pellicoro and M. Ruggieri.  
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  - **“Enforced neutrality and color-flavor unlocking in the three-flavor Polyakov-loop NJL model”**  
H. Abuki, M. Ciminale, R. Gatto, G. Nardulli and M. Ruggieri.  
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  - **“Electrical neutrality and pion modes in the two flavor PNJL model”**  
H. Abuki, M. Ciminale, R. Gatto, N. D. Ippolito, G. Nardulli and M. Ruggieri.  
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L. Campanelli and M. Ruggieri.  
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  - **“Three flavor Nambu-Jona Lasinio model with Polyakov loop and competition with nuclear matter”**  
M. Ciminale, R. Gatto, N. D. Ippolito, G. Nardulli and M. Ruggieri.  
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  - **“Equilibrium sequences of non-rotating and rapidly rotating crystalline color superconducting hybrid stars”**  
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  - **“Polyakov loop and the color-flavor locked phase of quantum chromodynamics”**  
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  - **“On the ground state of gapless two flavor color superconductors”**  
R. Gatto and M. Ruggieri.  
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  - **“Self-consistent evaluation of quark masses in three flavor crystalline color superconductivity”**  
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  - **“Evaluating the phase diagram of superconductors with asymmetric spin populations”**  
M. Mannarelli, G. Nardulli and M. Ruggieri.  
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- **“Massive quark effects in two flavor color superconductors”**

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