



Nuclear Theory

Can transport peak explain the low-mass enhancement of dileptons at RHIC?

Yukinao Akamatsu, Hideki Hamagaki, Tetsuo Hatsuda, Tetsufumi Hirano

(Submitted on 29 Jun 2011)

We propose a novel relation between the low-mass enhancement of dielectrons observed at PHENIX and transport coefficients of QGP such as the charge diffusion constant D and the relaxation time τ_J . We parameterize the transport peak in the spectral function using the second-order relativistic dissipative hydrodynamics by Israel and Stewart. Combining the spectral function and the full (3+1)-dimensional hydrodynamical evolution with the lattice EoS, theoretical dielectron spectra and the experimental data are compared. Detailed analysis suggests that the low-mass dilepton enhancement originates mainly from the high-temperature QGP phase where there is a large electric charge fluctuation as obtained from lattice QCD simulations.

Comments: To appear in the conference proceedings for Quark Matter 2011, May 23 - May 28, Annecy, France

Subjects: **Nuclear Theory (nucl-th)**; High Energy Physics - Phenomenology (hep-ph); Nuclear Experiment (nucl-ex)

Cite as: [arXiv:1106.5870 \[nucl-th\]](#)
(or [arXiv:1106.5870v1 \[nucl-th\]](#) for this version)

Submission history

From: Yukinao Akamatsu [[view email](#)]
[v1] Wed, 29 Jun 2011 08:21:08 GMT (30kb)

[Which authors of this paper are endorsers?](#)

Link back to: [arXiv](#), [form interface](#), [contact](#).

Download:

- [PDF](#)
- [PostScript](#)
- [Other formats](#)

Current browse context:

nucl-th
< [prev](#) | [next](#) >
[new](#) | [recent](#) | [1106](#)

Change to browse by:

[hep-ph](#)
[nucl-ex](#)

References & Citations

- [INSPIRE HEP](#)
([refers to](#) | [cited by](#))
- [NASA ADS](#)

Bookmark([what is this?](#))

