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Quark properties from the Hadron Resonance Gas

Thursday, 12 March 2015 09:00 (25 minutes)

This work is based on our recent works

- 1) Quark Hadron Duality at Finite Temperature
By E. Ruiz Arriola, L.L. Salcedo, E. Megias.
arXiv:1410.3869 [hep-ph].
10.5506/APhysPolB.45.2407.
Acta Phys.Polon. B45 (2014) 2407.
- 2) Polyakov loop spectroscopy in the confined phase of gluodynamics and QCD
By E. Megias, E. Ruiz Arriola, L.L. Salcedo.
arXiv:1409.0773 [hep-ph].
- 3) Polyakov loop in various representations in the confined phase of QCD
By E. Megias, E. Ruiz Arriola, L.L. Salcedo.
arXiv:1311.2814 [hep-ph].
10.1103/PhysRevD.89.076006.
Phys.Rev. D89 (2014) 7, 076006.
- 4) Polyakov loop, Hadron Resonance Gas Model and Thermodynamics of QCD
By E. Megias, E. Ruiz Arriola, L.L. Salcedo.
arXiv:1310.3079 [hep-ph].
10.1063/1.4901767.
AIP Conf.Proc. 1625 (2014) 73-79.
- 5) Constituent Quarks and Gluons, Polyakov loop and the Hadron Resonance Gas Model ,
By E. Megias, E. Ruiz Arriola, L.L. Salcedo.
arXiv:1307.7523 [hep-ph].
10.1051/epjconf/20146604021.
EPJ Web Conf. 66 (2014) 04021.
- 6) Excited Hadrons, Heavy Quarks and QCD thermodynamics
By E. Ruiz Arriola, L.L. Salcedo, E. Megias.
arXiv:1304.2245 [hep-ph].
10.5506/APhysPolBSupp.6.953.
Acta Phys.Polon.Supp. 6 (2013) 3, 953-958.
- 7) The Hadron Resonance Gas Model: Thermodynamics of QCD and Polyakov Loop
By E. Megias, E. Ruiz Arriola, L.L. Salcedo.
arXiv:1207.7287 [hep-ph].
10.1016/j.nuclphysbps.2012.12.039.
Nucl.Phys.Proc.Suppl. 234 (2013) 313-316.
- 8) From Chiral quark dynamics with Polyakov loop to the hadron resonance gas model
By E. Ruiz Arriola, E. Megias, L.L. Salcedo.
arXiv:1207.4875 [hep-ph].
10.1063/1.4795954.
AIP Conf.Proc. 1520 (2013) 185-190.

9) The Polyakov loop and the hadron resonance gas model

By E. Megias, E. Ruiz Arriola, L.L. Salcedo.

arXiv:1204.2424 [hep-ph].

10.1103/PhysRevLett.109.151601.

Phys.Rev.Lett. 109 (2012) 151601.

Summary

We show how quark properties can be determined from the Hadron Resonance Gas model below the deconfinement phase transition. This makes use of Quark-Hadron duality necessitating a tower of excited states and poses the interesting problem of identification of degrees of freedom at increasing temperatures, as well as the relevance of string breaking.

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