



# XXIV QUARK MATTER DARMSTADT 2014

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## Quark-gluon plasma connected to finite heat bath

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We present the derived entropy formulas for finite reservoir systems,  $S(q)$ , from universal thermostat independence and obtain the functional form of the corresponding generalized entropy-probability relation [1]. Our result interprets thermodynamically the subsystem temperature,  $T(1)$ , and the index  $q$  in terms of the temperature,  $T$ , entropy,  $S$ , and heat capacity,  $C$  of the reservoir as and . In the infinite  $C$  limit, irrespective of the value of  $S$ , the Boltzmann-Gibbs approach is fully recovered. We apply this framework for the experimental determination of the original temperature of a finite thermostat,  $T$ , from the analysis of hadron spectra produced in high-energy collisions, by analyzing frequently considered simple models of the quark-gluon plasma.

[1] T.S. Biró, G.G. Barnaföldi, P. Van: Eur.Phys.J. A49 (2013) 110

### On behalf of collaboration:

None

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