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Reconsideration of Statistical Hadronization in Light of LHC Results[1] MICHAL PETRAN, Czech Technical University in Prague, Czech Republic, JOHANN RAFELSKI, University of Arizona, Tucson, USA — We revisit the description of hadron production in heavy-ion collisions at SPS, RHIC considering new insights gained from LHC particle multiplicity analysis [1]. For all but lowest SPS energy just like at LHC, the non-equilibrium statistical hadronization model describes the experimental results accurately with a freeze-out temperature of $T \simeq 140\,\mathrm{MeV}$ and light quark phase space occupancy $\gamma_q \simeq 1.6$. A remarkable result is the constant hadronization pressure across SPS, RHIC, and LHC of $P = 80 \pm 3\,\mathrm{MeV/fm}^3$. On the other hand we find that the QGP fireballs created at different collision energies and centralities differ in size of hadronization volume by over two orders of magnitude, and analysis covers a wide range of chemical potential $\mu_B < 600$ MeV. The considerable difference between two lowest energies studied at SPS: $\sqrt{s_{NN}} = 6.26$ and 7.61 GeV indicates an opportunity for the Beam Energy Scan program at RHIC to identify the onset of quark deconfinement via study of hadron multiplicity yields.

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