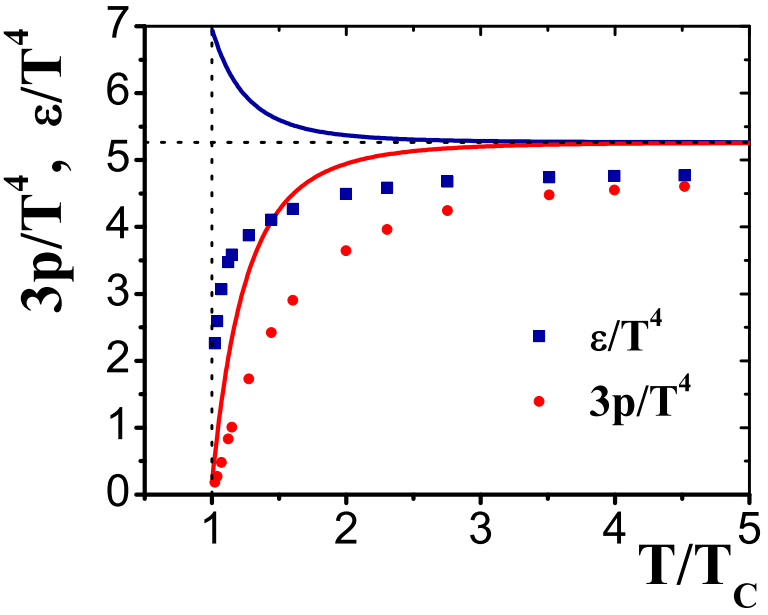

FIG. 1: The MC lattice results for SU(3) gluodynamics [2] for the energy density (squares) and pressure (circles) at $T > T_c$. The size of the symbols corresponds to the error-bars reported in Ref. [2]. The dashed horizontal line corresponds to the SB constant $\sigma_{SB} = 8\pi^2/15$. The solid lines show the BM EoS (1) with $d = 16$ and $B = 1.7T_c^4$ for ε/T^4 (upper line) and $3p/T^4$ (lower line).

BM EoS (1) gives no suppression of the SB constant. Note that we restrict our consideration to the present lattice results available at finite temperature interval $T_c < T < 4.5T_c$ and do not discuss the possible asymptotic behavior at $T \to \infty$. The BM energy density $\varepsilon(T)/T^4$ approaches its SB limit from above. This contradicts the MC lattice results. Despite these evident problems, the BM EoS (1), due to its simplicity, is still one of the most popular models for phenomenological applications.

In this letter we suggest a new analytical parametrization for the QGP EoS. It satisfies all three properties listed above, gives a good quantitative description of the MC lattice results for the SU(3) gluodynamics, and is almost as simple as Eq. (1).

As the first step, we consider the suppression of the σ_{SB} constant. For this purpose the quasi-particle approach of Ref. [3] (see also recent papers [4] and references therein) will be used. The system of interacting gluons is treated as a gas of non-interacting quasiparticles with gluon quantum numbers, but with mass $m(T)$ which depends on T. The particle energy ω and momentum k are assumed to be connected as $\omega = [k^2 + m^2(T)]^{1/2}$. The energy density and