Erratum to the paper [Soft Matter 7, 2419 (2011)]: "Cluster theory of Janus particles" by Riccardo Fantoni, Achille Giacometti, Francesco Sciortino, and Giorgio Pastore

i. On page 2420, the paragraph "In computing the partition function (5) we assume that the sum can be replaced by its largest dominant contribution. With the help of the Stirling approximation $N! \approx (N/e)^N$ one then obtains" and the Eq. (8) should be placed before the paragraph "The constraint can be dealt with by introducing a Lagrange multiplier so that we minimize the quantity".

ii. On page 2420, in the paragraph after Eq. (9), the sentence "in terms of the internal reduced free energy densities" should be replaced by "in terms of the internal free energies".

iii. On page 2422, the paragraph after Eq. (23): "Given the partition function Q_{tot} we can determine the Carnahan-Starling excess free energy" Should be clarified by: "Then Eq. (5) becomes a relationship between Q_{tot}, Z_{inter}, and all the Z_n^{intra}.

We may as well (see Ref. [16]) interpret Eq. (5) as a relationship between configurational partition functions. We will then from now on give the following interpretation to the symbols Q_{tot}, Z_{inter}, and the Z_n^{intra}: Q_{tot} will denote the total configurational partition function, Z_{inter} will denote the inter-cluster configurational partition function, and Z_n^{intra} will denote the intra-cluster configurational partition function. Given then the configurational partition function Q_{tot} we can determine the excess free energy ("Carnahan-Starling" like) as"

iv. After Eq. (25) the sentence "where u_n is the internal energy per particle ..." should be corrected into "where u_n is the excess internal energy per particle ...".

v. The correct Eq. (26) should read:

$$\frac{\beta P}{\rho} = \frac{1}{\rho} \frac{\partial(\ln Q_{tot})}{\partial V} \approx \frac{1}{\rho_t} \frac{\partial(\ln Z_{inter})}{\partial V} = \frac{1 + \eta_t + \eta_t^2 - \eta_t^3}{(1 - \eta_t)^3} , \tag{1}$$

where $\rho_t = N_t/V$ is the cluster density.

vi. On page 2424, in the paragraph "Fig. 5 displays ..." the sentence "we have considered the compressibility factor $\beta P/\rho$, the internal energy per particle $u = U/N$ and the reduced free energy per particle $\ln(Q_{tot})/N$" should be replaced by "we have considered the compressibility factor $\beta P/\rho$, the internal energy per particle $u = U/N$ and the quantity $\ln(Q_{tot})/N$"