## Erratum

## Stochastic Model of a One-Dimensional Fluid

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The derivation of z given on p. 157 of this paper<sup>1</sup> was based on the standard thermodynamic relation  $\partial \ln z/\partial p = 1/\alpha$ . For explicitly density-dependent potentials this relation is not quite true. From the expression for the Gibbs free energy

$$G(p, N) = -N \ln \int_0^\infty e^{-px} e^{-\phi(x,p)} dx$$

we see that

$$dG(p, N) = \left[L + N \left\langle \frac{\partial \phi}{\partial p} \right\rangle \right] dp + \left[\mu + \int^{p} \left\langle \frac{\partial \phi}{\partial p} \right\rangle dp \right] dN$$

where

$$\left\langle \frac{\partial \phi}{\partial p} \right\rangle = \int_0^\infty \frac{\partial \phi(x, p)}{\partial p} \, \alpha P_0^\alpha(x) \, dx$$

The total chemical potential has a contribution coming from "polarization" effects. The activity z derived in this paper really represents  $e^{\mu}$  with  $\mu$  defined

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as above. This also affects the proof of density dependence on p. 161. The expression following Eq. (20) should instead read

$$\left[L\left(\frac{\partial p}{\partial \alpha}\right) + N\frac{(1-\partial p/\partial \alpha)}{\alpha} - N\left\langle\frac{\partial \phi}{\partial \alpha}\right\rangle\right]P(N,L) - \frac{N+1}{\alpha}P(N+1,L)$$

which leaves the required proof inconclusive. However, the fact that the pair potential is explicitly density dependent can be proved easily by observing that in the region  $\sigma < x < 2\sigma$  we have  $P_0^{(\infty)}(x) = 1$ , yielding  $\partial \phi / \partial x = -p$ , which is clearly density dependent.