Erratum: "Spatial displacement correlations in polymeric systems" [J. Chem. Phys. 136, 164901 (2012)]

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The displacement-displacement correlation functions discussed in the paper are:

$$C_{\vec{u}}(r,t) = \langle \hat{\mathbf{u}}_i(t_0,t) \cdot \hat{\mathbf{u}}_j(t_0,t) \rangle,$$
$$C_{\delta u}(r,t) = \langle \delta u_i(t_0,t) \delta u_j(t_0,t) \rangle / \langle [\delta u(t_0,t)]^2 \rangle.$$

An average over all the i-th and j-th monomers spaced by r is understood. $\hat{\mathbf{u}}_k(t_0,t)$ is the versor of the displacement vector of k-th monomer in a time interval from t_0 to $t_0 + t$, $\mathbf{u}_k(t_0,t) = \mathbf{r}_k(t_0+t) - \mathbf{r}_k(t_0)$, and $\delta u_k(t_0,t) = |\mathbf{u}_k(t_0,t)| - \langle |\mathbf{u}(t_0,t)| \rangle$.

The explicit expressions of $C_{\vec{u}}(r,t)$ and $C_{\delta u}(r,t)$ provided by Eq.4 and Eq.5, respectively, are wrong. The correct expressions replace the quantity $N_i(r,t_0) \equiv \sum_{j=1}^N \delta(r - |\mathbf{r}_{ij}(t_0)|)$, i.e. the number of monomers at distance r from the i-th one at time t_0, with its *average* value over all the N monomers:

$$N(r,t_0) = \frac{1}{N} \sum_{i=1}^N N_i(r,t_0)$$

All the reported results are drawn by the correct expressions of the correlation functions.