equations

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Supplementary Equation 1. $MSD(\tau) = \sum_{i=t_0}^{n_\tau - \tau} \frac{(x_{i+\tau} - x_i)^2}{n_\tau} = 2Dt$

Supplementary Equation 2. $MSD_r(\tau) = \sum_{i=t_0}^{n_\tau - \tau} \frac{(\phi_{i+\tau} - \phi_i)^2}{n_\tau} = 2D_r t$

Supplementary Equation 3. $cos(\phi) = \frac{\vec{v_0} \cdot \vec{v}}{|\vec{v_0}||\vec{v}|}$

Supplementary Equation 4. $p = \sqrt{\frac{D}{D_r}} \cdot 2\pi$

Supplementary Equation 5. $D_{1D} = D_{helix} + \frac{x_{hop}^2 k_{hop}}{2}$

Supplementary Equation 6. $(salt = 0.02) \rightarrow$
$0.0010\ \mu m^2 s^{-1} + \frac{(9.4\ bp \times 0.34 \times 10^{-3} \mu m\ bp^{-1})^2 \times 3.3 \times 10^3 s^{-1}}{2} = 0.018\ \mu m^2 s^{-1}$

Supplementary Equation 7. $(salt = 0.03) \rightarrow$
$0.0010\ \mu m^2 s^{-1} + \frac{(0.8\ bp \times 0.34 \times 10^{-3} \mu m\ bp^{-1})^2 \times 7.4 \times 10^3 s^{-1}}{2} = 0.042\ \mu m^2 s^{-1}$