$$\bar{R}_v = 2\tau_e \cdot \mathbb{E} \big[\vec{R}_\top \vec{R}_\bot \big] + \frac{1}{2} \cdot \frac{N-1}{N} \cdot 2\tau_e \cdot \mathbb{E} \big[\vec{R}_\bot \vec{R}_\bot \big]$$