

$$\begin{aligned}
\frac{1}{2} \Delta(f_{ij} f^{ij}) = & 2 \cdot \left(\sum_{i < j} \chi_{ij} (\sigma_i - \sigma_j)^2 + f^{ij} \nabla_j \nabla_i (\Delta f) \right. \\
& \left. + \nabla_k f_{ij} \nabla^k f^{ij} + f^{ij} f^k \left[2 \nabla_i R_{jk} - \nabla_k R_{ij} \right] \right)
\end{aligned} \tag{4.15}$$