Self Consistent Linearly Forced Elastic Network Model

The LFENM model's theoretical weakness is that $\mathbf{K}$ is inconsistent with $mathbf{r}_{mut}^0$:

$$\mathbf{K}(\mathbf{r}_{mut}^0) \neq \mathbf{K}_\circ$$

The LFENM keeps only the linear terms of the perturbed potential, discarding the quadratic terms:

$$V_{mut} = V_{mut}(r_{mut}^0) + \frac{1}{2}\Delta\mathbf{r}^T\mathbf{K}\Delta\mathbf{r}$$

where $\mathbf{K}$ for the mutant is identical to that of the wild-type (because quadratic terms of the potantial are discarded.) There's a *lateral* and *vertical* shift of the potential energy surface, but no *rotation* (same normal modes) or *deformation* (same eigenvalues).