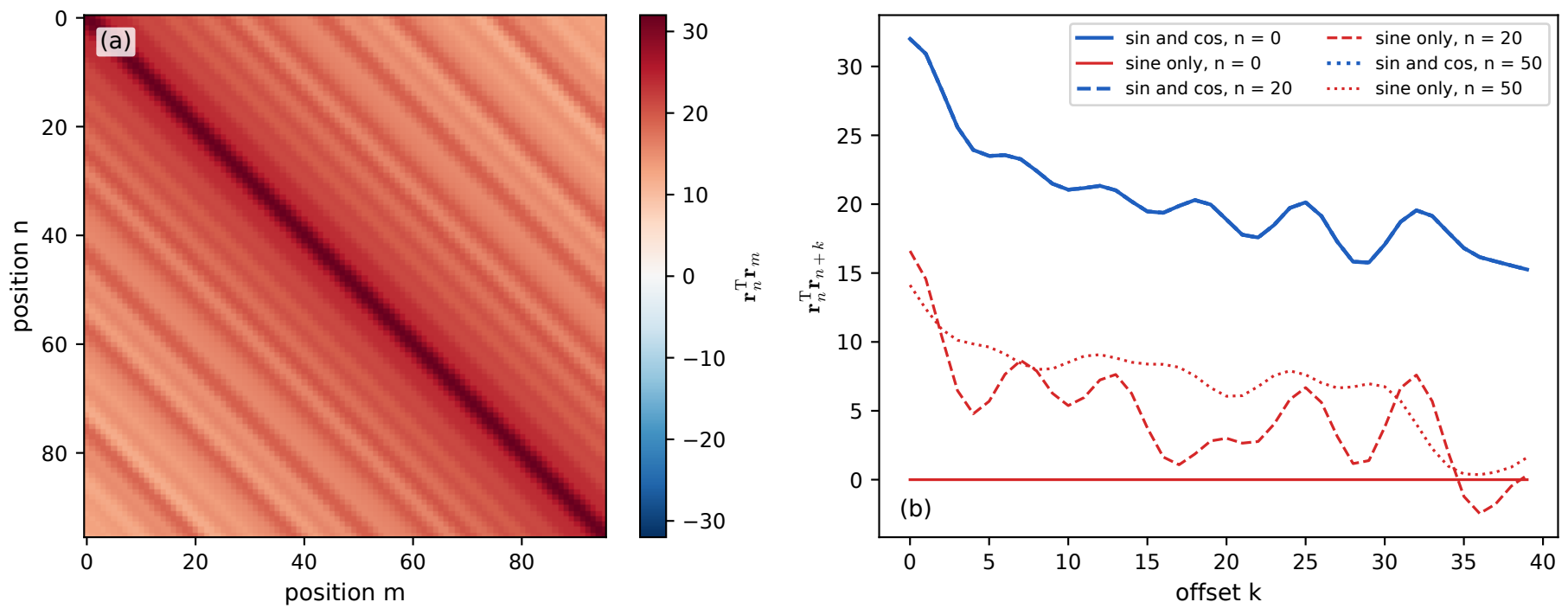

(a)
position n
position m
$\mathbf{r}_n^{\mathrm{T}}\mathbf{r}_m$
(b)
$\mathbf{r}_n^{\mathrm{T}}\mathbf{r}_{n+k}$
offset k
sin and cos, n = 0
sine only, n = 0
sin and cos, n = 20
sine only, n = 20
sin and cos, n = 50
sine only, n = 50