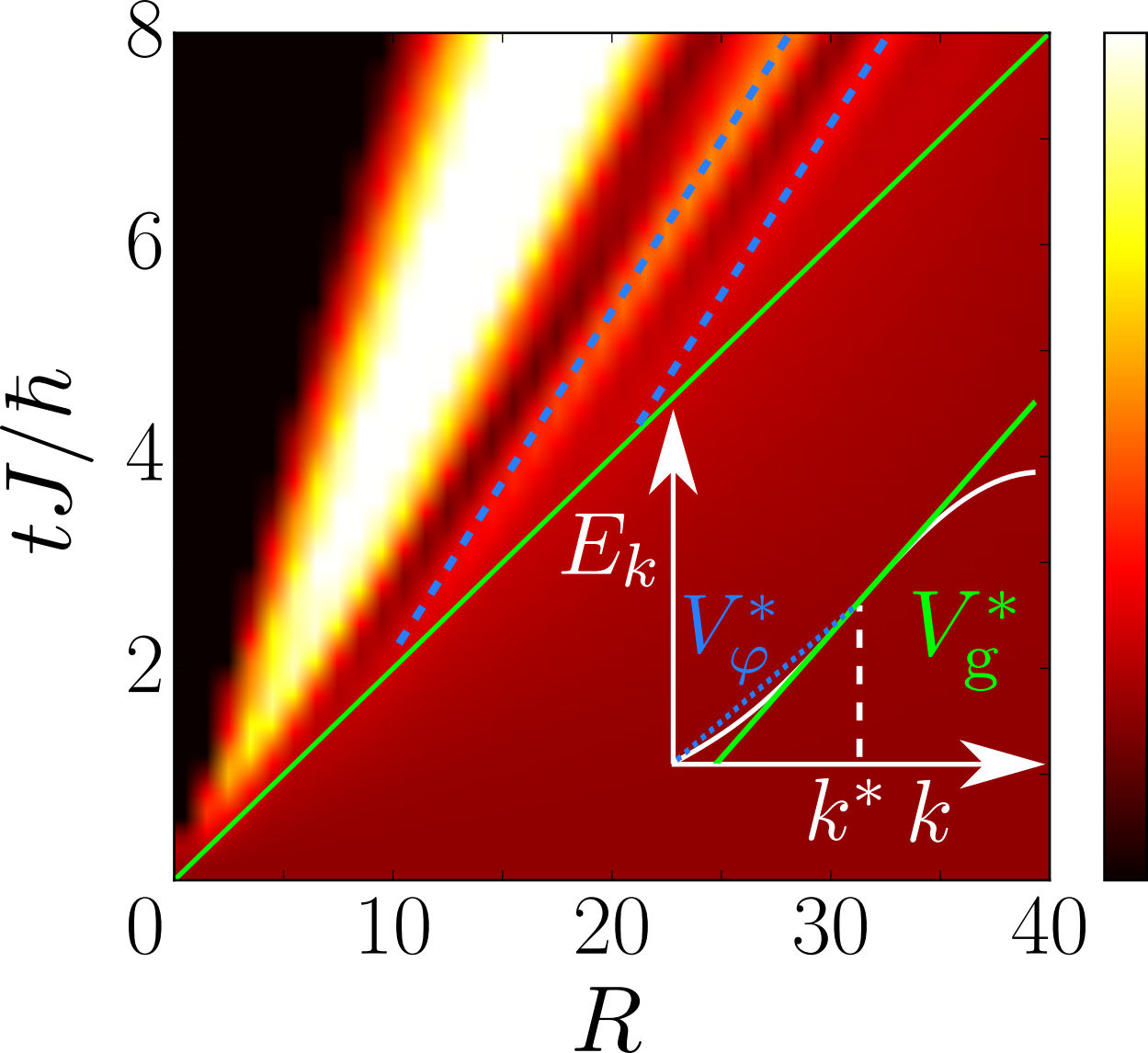
8
6
4
2
0
10
20
30
40
$tJ/\hbar$
R
E_k
V^*_φ
V^*_g
k^*
k