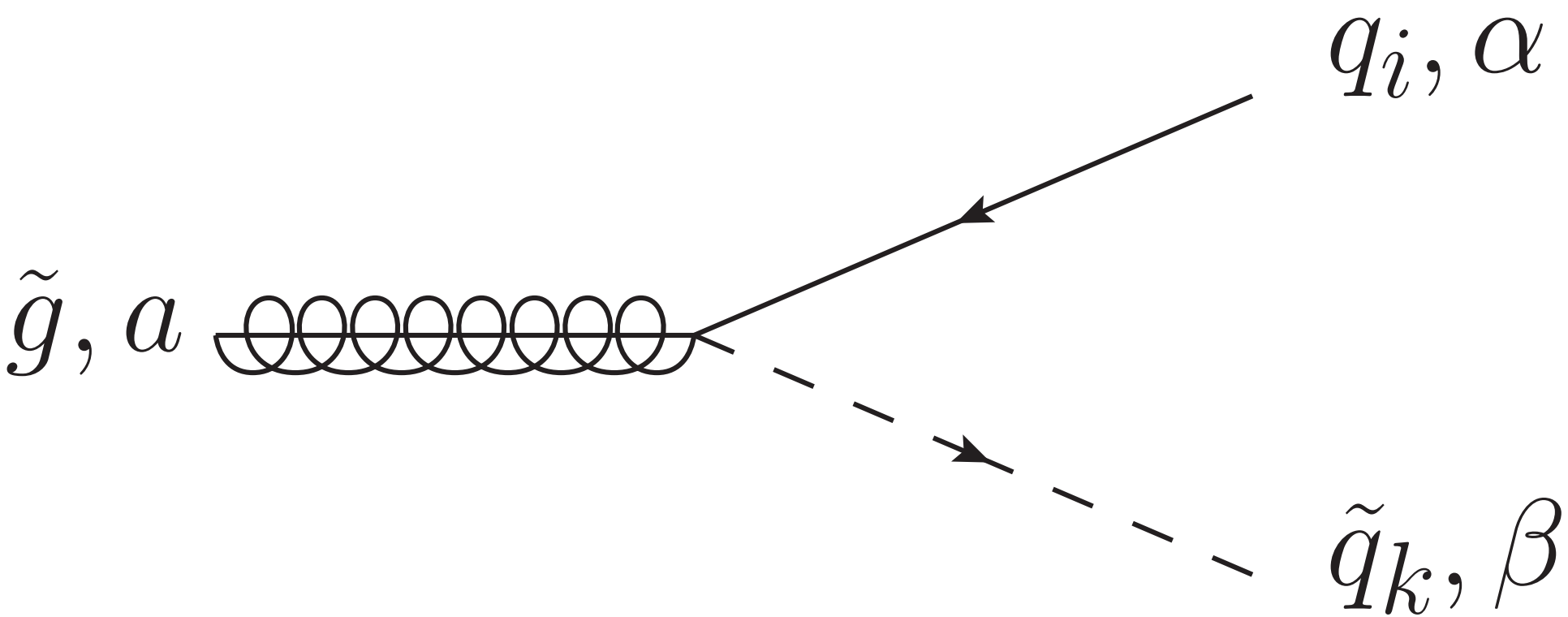
q_i, α
$\tilde{g}, a$
$\tilde{q}_k, \beta$