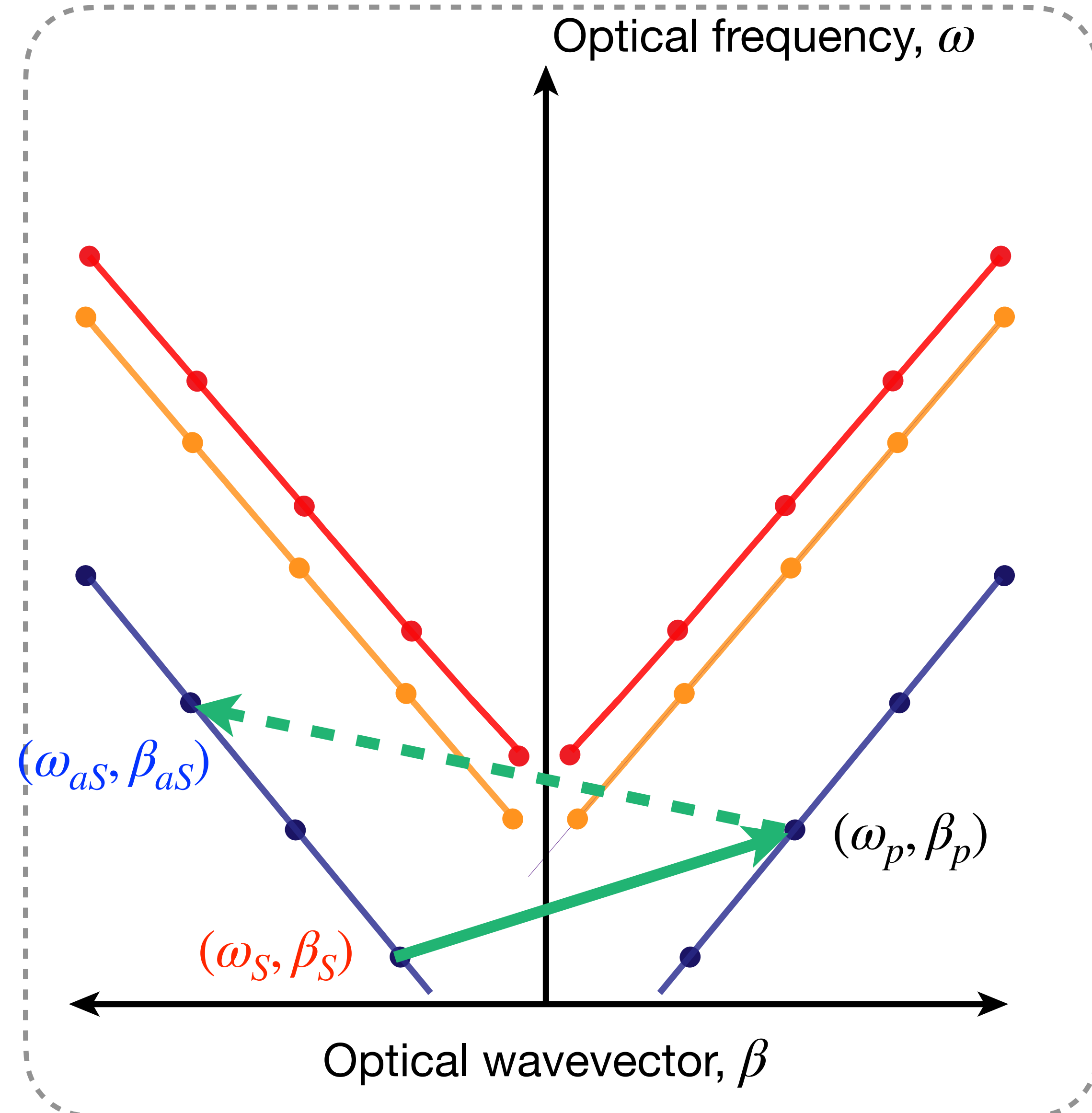# Phase-matching: intra-modal BW
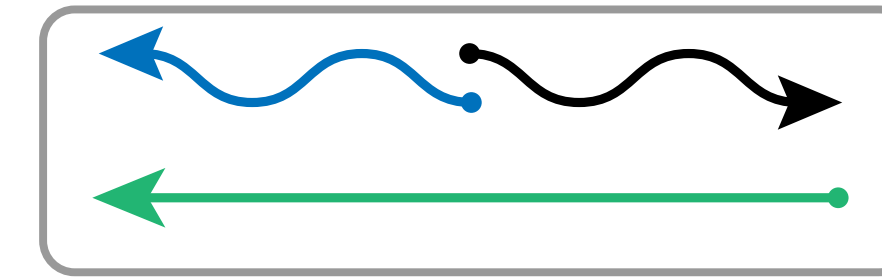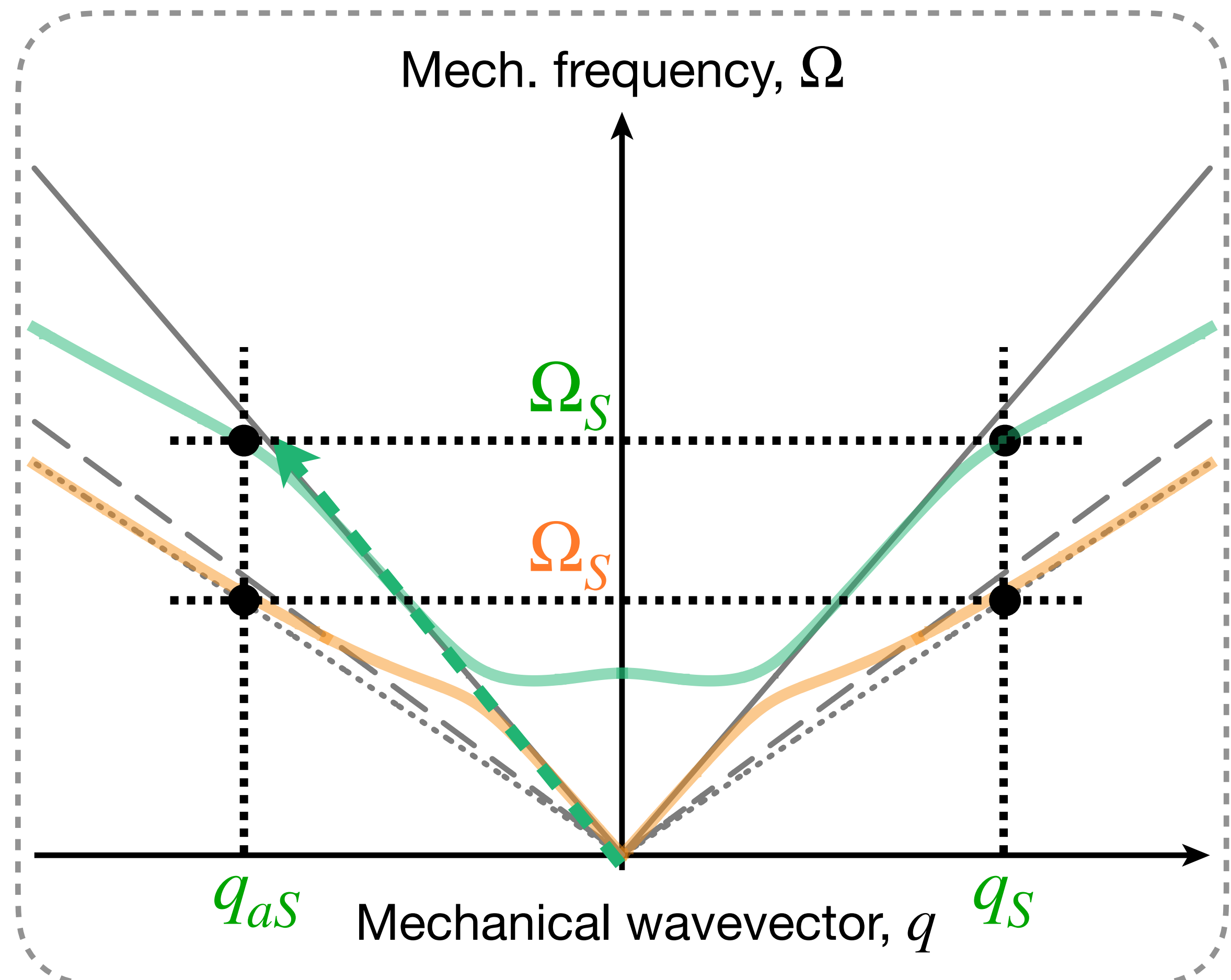

$$q_{aS} = -(|k_S| + |k_p|) \approx -2|k_p|$$

$$\Omega_S \approx 2\frac{v_{ac}}{c}\omega_p n_{eff}$$

Optical frequency, ω

$(\omega_{aS}, \beta_{aS})$

(ω_p, β_p)

(ω_S, β_S)

Optical wavevector, β

Mech. frequency, Ω

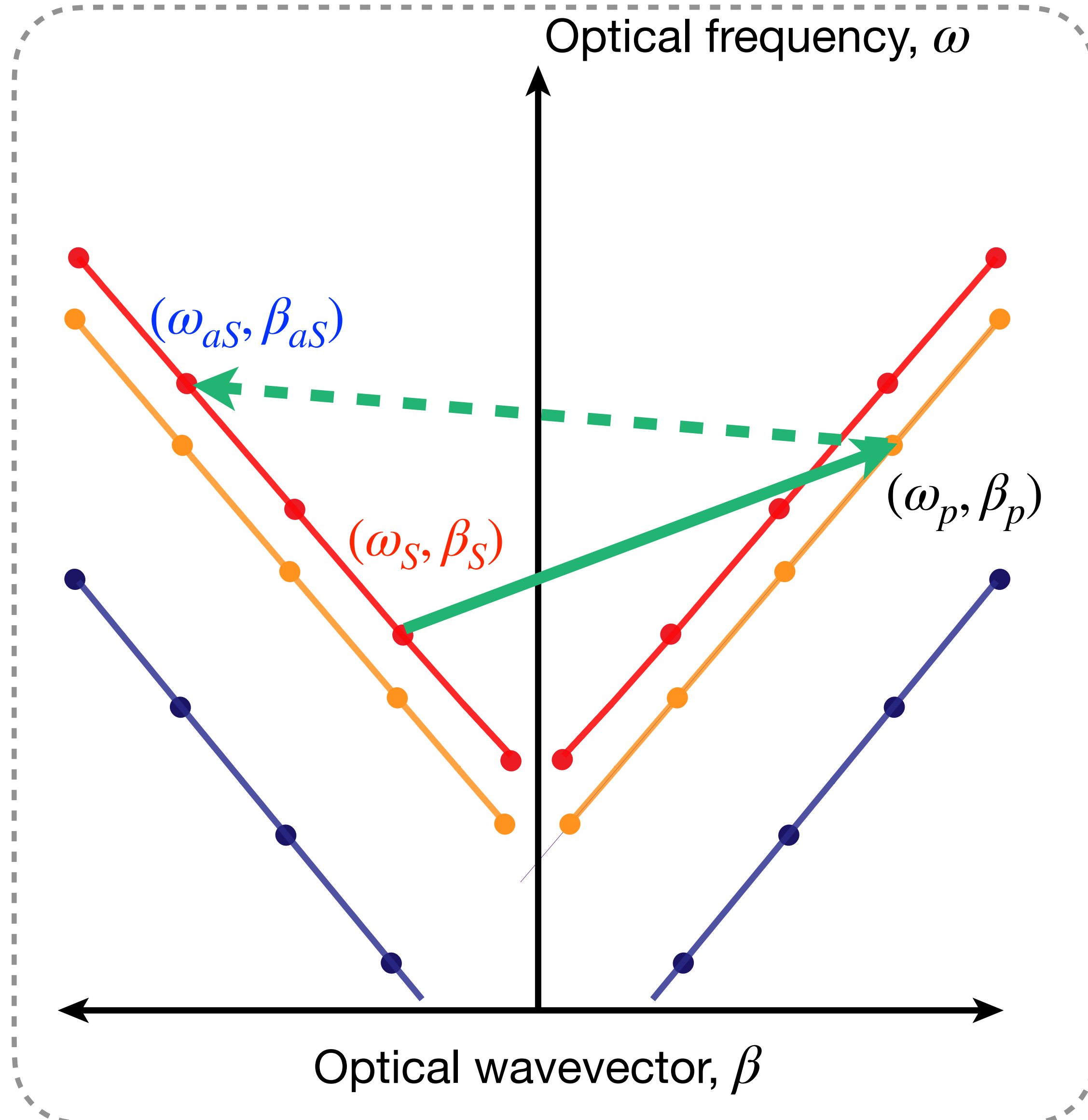Ω_S

Ω_S

q_{aS} Mechanical wavevector, q q_S

Phase-matching: inter-modal BW

$$q_S = + (|k_S| + |k_p|) \neq 2|k_p|$$

$$\Omega_S \approx \frac{v_{ac}}{c}\omega_p(n_{eff}^{(p)} + n_{eff}^{(s)})$$

Optical frequency, ω

$(\omega_{aS}, \beta_{aS})$

(ω_S, β_S)

(ω_p, β_p)

Optical wavevector, β

Mech. frequency, Ω

Ω_S

Ω_S

q_{aS} Mechanical wavevector, q q_S