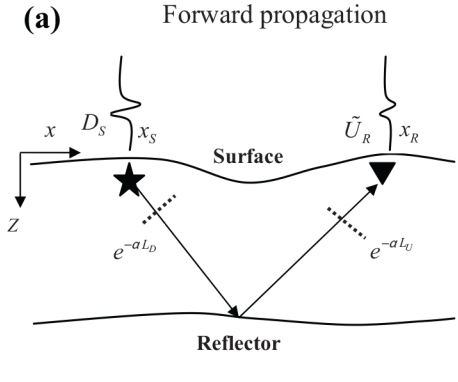
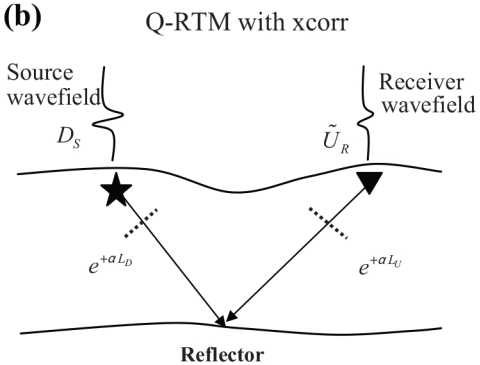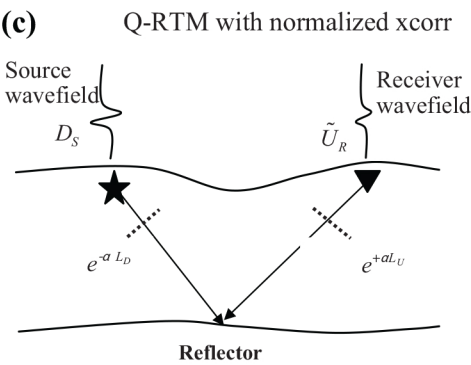
$$\tilde{U}_R = U_R e^{-aL_U} e^{-aL_D}$$