where the electric field from the interferometer $E(t,\tau)$ is

$$E(t,\tau)=\frac{1}{2\pi}\int E_0(\omega)\cdot\tilde{t}(\omega,\tau)\cdot e^{i\omega t}d\omega \tag{9}$$

$$E_0(\omega)=\int E_0(t)\cdot e^{-i\omega t}dt, \tag{10}$$

where $E_0(\omega)$ is the initial electric field in frequency domain and $\tilde{t}(\omega,\tau)$ is the complex amplitude transfer function as a kernel of inverse Fourier transform. By using the dynamic matrix [12,13], one can derive the transfer function for each interferometer as follows:

$$\tilde{t}_M(\omega,\tau)=r\cdot t\cdot(e^{-i\omega\tau_0}-e^{-i\omega\tau}) \tag{11}$$

$$\tilde{t}_{FP2}(\omega,\tau)=t^2\cdot e^{-i\omega\tau/2}\big/(1-r^2\cdot e^{-i\omega\tau}) \tag{12}$$

$$\tilde{t}_{FP3}(\omega,\tau)=t^3\cdot e^{-i\omega(\tau+\tau_0)/2}\big/\{1-r^2(e^{-i\omega\tau}+e^{-i\omega\tau_0}-e^{-i\omega(\tau+\tau_0)})\}, \tag{13}$$

where $\tilde{t}_M$, $\tilde{t}_{FP2}$ and $\tilde{t}_{FP3}$ are the transfer functions for a Michelson interferometer, a Fabry-Perot interferometer with two and three interfaces, respectively. $r$ and $t$ are the reflection and transmission coefficients where $|r|^2+|t|^2=1$. $\omega$ is the angular frequency and $\tau$ is an optical delay, defined as $\tau=2n_0d/c$. $n_0$ is the refractive index of the air and $c$ is the speed of light. $d$ is the distance between a beam splitter and a delay mirror for a Michelson interferometer or it is the distance between two etalons for a Fabry-Perot interferometer, as shown in Fig. 5. $\tau_0$ is the reference delay which is defined as $\tau_0=2n_gd_0/c$, where $n_g$ is the group index of a reference medium, which corresponds to the substrate material of etalons for a Fabry-Perot interferometer or the air for a Michelson interferometer. $d_0$ is the thickness of an etalon for a Fabry-Perot interferometer or the distance between a beam splitter and a reference mirror for a Michelson interferometer.

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