

$$\sum_{j=1}^\infty \left(\frac{1}{\epsilon_0^{-1}+\delta\lambda_j^{\alpha/2}}\right)^2\left\langle e_j,(a+\delta A^{\alpha/2})(\epsilon_0^{-1}+\delta A^{\alpha/2})^{-2}(ae_k)\right\rangle_{\mathcal{H}}^2\quad 36mu\leq C\|ae_k\|_{\mathcal{H}}^2\sum_{j=1}^\infty \left(\frac{1}{\epsilon_0^{-1}+\delta\lambda_j^{\alpha/2}}\right)^2<\infty,$$