

$$\left(K^{-1}\right)_S^U = -\frac{z^{*3}(1-A|z|^2)P'(y)}{e^{\tilde{K}/2}P''(y)}, \quad \left(K^{-1}\right)_T^U = \frac{(T+T^*)z^{*3}(1-A|z|^2)}{e^{\tilde{K}/2}\left(1-\frac{\tilde{n}}{3}B(1-A|z|^2)\|\Pi\|\right)},$$