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Turán type inequalities for Krätzel functions

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**Abstract.** Complete monotonicity, Laguerre and Turán type inequalities are established for the so-called Krätzel function $Z^\nu_\rho$, defined by

$$Z^\nu_\rho(u) = \int_0^\infty t^{\nu-1}e^{-t^\rho}\,dt,$$

where $u > 0$ and $\rho, \nu \in \mathbb{R}$. Moreover, we prove the complete monotonicity of a determinant function of which entries involve the Krätzel function.