Some new extensions on Hilbert's integral inequality and its applications

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ABSTRACT.

We give some new extensions and refinements of Hilbert's integral inequality with parameters λ and $\mu \left(0 < \mu \leq 2, 0 < \dfrac{\mu}{\lambda} < 2\right)$ by introducing a proper weight function. As applications, some extensions and strengthened results of Widder's theorem and Hardy- Littlewood's theorem are also given.

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