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Alexandru Zaharescu. *The twisted second moment of modular half integral weight L-functions.*

Given a half-integral weight holomorphic Kohnen newform f on $\Gamma_0(4)$, we prove an asymptotic formula for the second moment of the L-function attached to $f \otimes \chi$, over all primitive χ modulo a prime p . Our result is unconditional, it does not rely on the Ramanujan—Petersson conjecture for the form f . This gives a very sharp Lindelöf on average result for L-series attached to Hecke eigenforms without an Euler product. The Lindelöf hypothesis for such series was originally conjectured by Hoffstein. (Received January 16, 2020)