

**ZMATH 2016e.00828**

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**Finding sums for an infinite class of convergent series.**

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Summary: We use Leibniz's rule and the cotangent function to evaluate the following infinite series  $\sum_{k=1}^{\infty} \frac{1}{k^2}$ ,

$$\sum_{k=1}^{\infty} \frac{(-1)^{k-1}}{(2k-1)^3}, \sum_{k=1}^{\infty} \frac{1}{k^4}, \sum_{k=1}^{\infty} \frac{(-1)^{k-1}}{(2k-1)^5}, \dots$$

*Classification:* I30 F60

*Keywords:* infinite series; recurrence relation; cotangent function

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