## Mathematics > Combinatorics

## On Zudilin's q-question about Schmidt's problem

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For any integer \$rlgeqslant 2\$, using the \$q\$-Pfaff-Saalsch\"utz identity, we prove that there exists a (unique) sequence of Laurent polynomials $\$ \backslash\left\{\mathrm{~b}^{\wedge}\{(\mathrm{r})\}\right.$ $\left.\_k(q) \backslash\right\}\{k=0\}^{\wedge}$ infty $\$$ in $\$ q \$$ with nonnegative integral coefficients such that \sum_\{k=0\}^n $q^{\wedge}\{-r n k\}\{n \backslash b r a c k ~ k\}^{\wedge} r\{n+k \mid b r a c k ~ k\}^{\wedge} r=\backslash s u m \_\{k=0\}^{\wedge} n q^{\wedge}\{-n k\}$ \{n\brack $k\}\{n+k \mid b r a c k ~ k\} b^{\wedge}\{(r)\} \_k(q)$, where $\$\{n \backslash b r a c k ~ k\} \$$ denotes the $\$ q \$-$ binomial coefficient. This gives a new solution to Zudilin's question about finding a \$q\$-analogue of Schmidt's problem.

Comments: 5 pages, two open problems are added
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