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Jeffrey J Langford* (jj1026@bucknell.edu), Bucknell University, 1 Dent Drive, Lewisburg, PA 17837. *A proof of Kawohl's conjecture.*

In the early 1980's, B. Kawohl conjectured that the solution u to the Poisson PDE

$$\begin{aligned} -\Delta u &= f && \text{in } R, \\ \frac{\partial u}{\partial n} &= 0 && \text{on } \partial R, \end{aligned}$$

in the unit rectangle R oscillates no more than the solution v to a "rearranged" problem

$$\begin{aligned} -\Delta v &= f^\# && \text{in } R, \\ \frac{\partial v}{\partial n} &= 0 && \text{on } \partial R, \end{aligned}$$

where the function $f^\#$ is obtained by rearranging f 's vertical slice functions monotonically. We provide a proof of this conjecture using the star function method and tools from complex analysis. (Received January 27, 2014)