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Hongbin Chen* (hbchen@mail.xjtu.edu.cn), Department of Mathematics, Xi'an Jiaotong University, Xi'an 029-710049 P.R. China, and **Yi Li** (yi-li@math.uiowa.edu), Department of Mathematics, University of Iowa, Iowa City, Iowa 52242, USA. *ON HOT SPOTS CONJECTURE FOR NONCONVEX PLANAR DOMAIN.*

In this paper, we show that the second Neumann eigenfunction attains its maximum and minimum values on its boundary.

More precisely, we prove

Theorem Let Ω be a bounded domain in the plane with two axes symmetry such that the tangent of the upper boundary curve and x_1 axis forms an acute angle. Let u be the Neumann eigenfunction with lowest eigenvalue among the functions that are odd with respect to x_1 , i.e. $u(-x_1, x_2) = u(x_1, x_2)$, and $u(x_1, x_2) > 0$ for $x_1 > 0$. Then

$$\frac{\partial u}{\partial x_1} > 0 \quad \text{in } \Omega.$$

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