

## Positive solutions of Schrödinger equations in product form and Martin compactifications of the plane

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**Abstract.** We determine the structure of all positive solutions to a Schrödinger equation  $(-\Delta + V_1(x_1) + V_2(x_2))u = 0$  on  $\mathbb{R}^2$ , and show that there are 12 different patterns of the structure. Here the real potentials  $V_j$  for  $j = 1, 2$  belong to a wide class of functions including model potentials  $V_j(t) = |t|^{a_j}$  for  $a_j > 0$ . We show that whether  $a_j > 2$  or  $2/3 < a_j \leq 2$  or  $a_j \leq 2/3$  makes a crucial difference in the model case.

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