

# SPECTRAL PROPERTIES OF A LIMIT-PERIODIC SCHRÖDINGER OPERATOR IN DIMENSION TWO.

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ABSTRACT. We study Schrödinger operator  $H = -\Delta + V(x)$  in dimension two,  $V(x)$  being a limit-periodic potential. We prove that the spectrum of  $H$  contains a semiaxis and there is a family of generalized eigenfunctions at every point of this semiaxis with the following properties. First, the eigenfunctions are close to plane waves  $e^{i(\vec{k}, \vec{x})}$  at the high energy region. Second, the isoenergetic curves in the space of momenta  $\vec{k}$  corresponding to these eigenfunctions have a form of slightly distorted circles with holes (Cantor type structure). Third, the spectrum corresponding to the eigenfunctions (the semiaxis) is absolutely continuous.

Keywords: Schrödinger equation, limit-periodic potential, spectrum, eigenfunctions.

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