1085-35-42   **Yulia Karpeshina** and **Roman Shterenberg*** (`shterenb@math.uab.edu`), Department of Mathematics, University of Alabama at Birmingham, 1300 University Blvd., Birmingham, AL 35294. *Extended States for Polyharmonic Operators with Quasi-periodic Potentials in Dimension Two.*

We consider a polyharmonic operator $H = (-\Delta)^l + V(x)$ in dimension two with $l \geq 2$, l being an integer, and a quasi-periodic potential $V(x)$. 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 $e^{i\langle k,x \rangle}$ at the high energy region. Second, the isoenergetic curves in the space of momenta k corresponding to these eigenfunctions have a form of slightly distorted circles with holes (Cantor type structure). A new method of multiscale analysis in the momentum space is developed to prove these results. (Received August 16, 2012)

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