Resonances for a problem of homogenization
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We consider a d-dimensional Schrödinger operator where the potential has the form $V = V(\frac{x}{\epsilon}, x)$ where ϵ is a very small parameter. The function V is real-valued, smooth in $\frac{x}{\epsilon}$, and x, periodic in $\frac{x}{\epsilon}$, and quickly decaying at infinity in x. The dependance in the periodic variables is rapid with respect to the others. The study of this operator is a typical example of an homogenization problem. Here we are interested in spectral problems.

We define the homogenized operator by averaging in the periodic variables and we assume that this operator has resonances, which can be localized as usual in the case of the situation of a well in an island for a Schrödinger operator. We prove that the previous operator has also resonances and we give asymptotic expansions of them.

This work was begun with A. Pozharskii and V. Buslaev.