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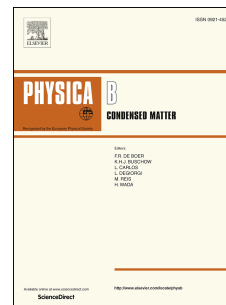
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# Harmonic oscillator in an elastic medium with a spiral dislocation

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## Abstract

We investigate the behaviour of a two-dimensional harmonic oscillator in an elastic medium that possesses a spiral dislocation (an edge dislocation). We show that the Schrödinger equation for harmonic oscillator in the presence of a spiral dislocation can be solved analytically. Further, we discuss the effects of this topological defect on the confinement to a hard-wall confining potential. In both cases, we analyse if the effects of the topology of the spiral dislocation gives rise to an Aharonov-Bohm-type effect for bound states.

PACS numbers:

Keywords: spiral dislocation, linear topological defects, harmonic oscillator, analytical solutions

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