From walking droplets to de Broglie's Double Solution: an attempt

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Inspired by walking droplets experiments we suggest a very simple system aiming to deal with main characteristics of these experiments, while maintaining a convenient formalism to identify quantum analogies. This theoretical system consists of (*i*) an elastic medium which carries transverse waves governed by a Klein-Gordon-like equation and (*ii*) one point-like high elastic medium density, considered as a point mass particle. A potential-like energy is also suggested (inspired by submerged barriers in walking droplets experiments) which here appears as an effective gravitational potential.

This toy system exhibits (*i*) an effective Schrödinger equation, (*ii*) an effective de Broglie-Bohm guidance formula and (*iii*) an energy of the 'particle' which has a direct counterpart in relativity as well as in quantum mechanics. In addition, this effective gravitational potential allows one to easily understand here, why proper time varies from place to place.