



Coloquio del Instituto de Física

Variations on a theme of Aharonov and Bohm

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The partial anticipation of the Aharonov-Bohm (AB) effect by Ehrenberg and Siday was an approximation whose wavefunction was not singlevalued; its connection with the singlevalued AB wave involves topology: 'whirling waves' winding round the flux. AB is a fine illustration of idealization in physics. There are four AB effects, depending on whether the waves and the flux are classical or quantum; in the classical-classical case, fine details of the AB wavefunction have been explored experimentally in ripples scattered by a water vortex. The AB wave possesses a phase singularity, and there is a similar phenomenon in general interferometers. There are connections between the AB wave and the Cornu spiral describing edge diffraction.

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