

Towards the twin atoms

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Sinopse. The aim of this work is to measure the twin atoms produced by the fragmentation of a diatomic molecule.

In 1951, David Bohm proposed a gedanken experiment [1] based on the correlation suggested at the famous EPR article [2]. From the fragmentation of a diatomic molecule it would be produced a pair of entangled atoms, the twin atoms.

In the present work, the twin atoms under study are a pair of metastable $H(2s)$ originated from the dissociation of the H_2 molecule after its collision with a pulsed electron beam [3,4,5]. Identify the $H(2s)$ spectrum using the time of flight mass spectrometry technique was the first step. After, we should consider the kinematics of the collision to align the detectors, to thereby measure the pair of twin $H(2s)$ neutral atoms in coincidence. The experimental spectra were compared with the theoretical spectrum of the $^1\Sigma_g$ potential energy curve calculated by L. O. Santos [6].

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