

Turkish Journal of Physics

Turkish Journal

of
Physics

General Formulation of the Scattered Matter Waves by a Quantum Shutter

Yusuf Z. UMUL

Faculty of Engineering and Architecture, Electronic and Communication Department,
Çankaya University, Balgat, 06530, Ankara-TURKEY
e-mail: yziya@cankaya.edu.tr

 [Keywords](#)
[Authors](#)



phys@tubitak.gov.tr

[Scientific Journals Home](#)
[Page](#)

Abstract: The scattering process of matter waves by a quantum shutter is investigated by using the spectrum integral representation. The scattered fields are expressed in terms of the Fresnel function. It is shown that the obtained equation gives the Moshinsky function for a one dimensional problem of the plane wave. Also a general integral representation is derived for two dimensional problems. The scattering of matter waves for some special wave-packets are examined analytically and numerically.

Key Words: Edge diffraction, Schrödinger equation, Diffraction in time.

Turk. J. Phys., **33**, (2009), 1-9.

Full text: [pdf](#)

Other articles published in the same issue: [Turk. J. Phys., vol.33, iss.1.](#)