

Abstract Submitted
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Study of solitons in strongly correlated systems IRINA BARIAKHTAR, Boston College, ALEXANDER NAZARENKO, Harvard University — The aim of this paper is to draw the researchers' attention to the fact that the study of the scattering of x rays (or, incidentally, the scattering of light or electrons), together with an investigation of the neutron scattering, can give important experimental information about the properties of the solitons in solids. In this work we discuss the one-dimensional solitons that arise in two-dimensional (quasi-two-dimensional) crystals. As an example of such systems we use some high-temperature superconductor materials. In this paper we calculate the structure factors of solitons. We consider examples of solitons corresponding to the formation of a kink (fold) in a system of adatoms on the surface of a substrate. We discuss that by calculating the cross section for elastic scattering of x-rays and comparing it to experimental data one can investigate the presence and properties of solitons in such systems.

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