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Dirac coupled channel analyses of the 800MeV proton inelastic scatterings from ^{22}Ne SUGIE SHIM, MOON-WON KIM, Kongju National University — Dirac analyses are performed for the 800MeV proton inelastic scatterings from an s-d shell nucleus ^{22}Ne using the optical potential model. Dirac coupled channel equations are solved numerically using the sequential iteration method by varying the optical potential and deformation parameters, using a computer code called ECIS. Dirac equations are reduced to obtain Schroedinger-like second-order differential equations and the obtained effective central and spin-orbit optical potentials are analyzed and compared with those of other s-d shell nuclei such as^{20}Ne, ^{24}Mg and ^{26}Mg. It is found that relativistic analyses based on Dirac equation could describe the experimental data for the 800 MeV proton inelastic scatterings from ^{22}Ne reasonably well. The surface-peaked phenomena are observed for the real parts of effective central potentials for the scattering from ^{22}Ne, as shown in the case of ^{20}Ne and ^{24}Mg. Dirac phenomenological results for the deformation parameters for 2^+ and 4^+ states of ^{22}Ne agree well with the results of the nonrelativistic calculation using the same W-S potential shape.

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