

## Resonant Continuum in the Relativistic Mean-Field Theory

CAO Li-Gang<sup>1</sup> and MA Zhong-Yu<sup>1,2,3</sup>

<sup>1</sup> China Institute of Atomic Energy, P.O. Box 275(18), Beijing 102413, China

<sup>2</sup> Center of Nuclear Theoretical Physics, National Laboratory of Heavy Ion Accelerator, Lanzhou 730000, China

<sup>3</sup> Institute of Theoretical Physics, Academia Sinica, Beijing 100080, China

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**Abstract:** Energies, widths and wave functions of the single-particle resonant continuum are determined by solving scattering states of the Dirac equation with proper asymptotic conditions for the continuous spectrum in the relativistic mean-field theory. The relativistic regular and irregular Coulomb wave functions are calculated numerically. The resonance states in the continuum for some closed- or sub-closed-shell nucleus in Sn-isotopes, such as <sup>114</sup>Sn, <sup>116</sup>Sn, <sup>118</sup>Sn, and <sup>120</sup>Sn are calculated. Results show that the S-matrix method is a reliable and straightforward way in determining energies and widths of resonant states.

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Key words: single-particle resonant states, relativistic mean-field theory, relativistic Coulomb wave function

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