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3D High-Precision Tunnel Gravity Exploration Method for Concealed High-Density Ore-Bodies: A Case Study on the Zhaotong Maoping Carbonate-Hosted Zn-Pb-(Ag-Ge) Deposit in Northeastern Yunnan, China

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Abstract : Accurately positioning detection of concealed deposits or ore-bodies is one of the difficult problems in mineral exploration field. Theory calculation and exploration practices for tunnel gravity indicate that 3D high-precision Tunnel Gravity Exploration Method (TGEM) can find concealed high-density three-dimensional ore-bodies in the depth. The ore-finding breakthroughs at the depth of the Zhaotong Maoping carbonate-hosted Zn–Pb–(Ag–Ge) deposit in Northeastern Yunnan have proved that the exploration method in combination with MEAHFZ method is effective to detect concealed high-density ore-bodies. TGEM may overcome anomalous ambiguity of other geophysical methods for 3D positioning of concealed ore-bodies.

Keywords : 3D tunnel gravity exploration method, concealed high-density Ore-bodies, Zn–Pb–(Ag–Ge) deposit, Zaotong mapping, Northeastern Yunnan
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