QERT - Quadrupole Electrical Resistivity Tomography

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The quadrupole technique for geoelectrics yields the apparent resistivity in a tensorial form in contrast to the scalar apparent resistivity obtained from classical geoelectrics. The quadrupole method in geoelectrics has been applied in the past only for long offsets between transmitter and receiver. We scaled down the method to profile-style and grid-style short offset applications. Analysis of the invariants of the apparent resistivity tensor and its representation as ellipse can be used to obtain an estimate of the dimensionality of the subsurface conductivity distribution. We present the basic theory of the quadrupole ERT technique along with numerical and field examples highlighting the advantages over classic geoelectrical survey methods.