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About the complete reconstruction of the MT impedance tensor from its invariants

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The magnetotelluric (MT) impedance tensor has in general eight real-valued elements. From the MT tensor is possible to define seven independent rotational invariants (Szarka and Menvielle 1997). Tensor invariants (especially the system of the so-called "WAL" invariants [the name is derived from the initials of Weaver, Agarwal, Lilley 2000] are becoming more and more popular in the MT interpretation. The eightht parameter in the MT tensor must be a characteristic direction (e.g. the Swift angle). In this poster I demonstrate analytically that the MT tensor can be completely reconstructed from its seven rotational invariants and from the characteristic direction. It means that a transformation of the MT tensor into a system of independent invariants is not loosing its original information content. This work was supported by the Hung. Res. Found., project no. T37694.