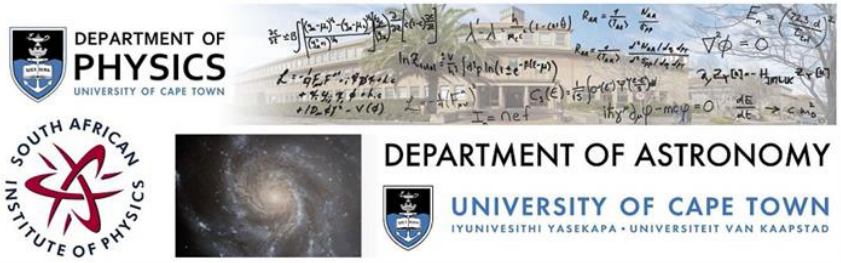

Contribution ID: **68** Type: **Oral Presentation**

Determining resonance parameter from experimental cross-sections of Coulomb scattering.

Tuesday, 5 July 2016 15:20 (20 minutes)

Abstract content
   (Max 300 words)
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Scattering data is fitted with a new parametrization of the multi-channel Scattering matrix (S-matrix) to determine the resonance parameters (resonance energy and resonance width) of scattering problems involving Coulomb interactions. The S-matrix is written in terms of the corresponding "in" and "out" Jost matrices which are expanded in the Taylor series of the collision energy, E, around an appropriately chosen energy, E0. This is achieved by writing the Jost matrices in a semi-analytic form where all the factors responsible for the multi-valuedness of the Jost matrices and branching of the
Riemann surface of the energy are factorised explicitly. The remaining unknown factors in the Jost matrices are analytic and single-valued functions of the variable E and are defined on a simple energy plane. The expansion is done for these analytic functions and the expansion coefficients are used as the fitting parameters. The method is tested on both a single-channel and a two-channel model, using sets of artificially generated data points with typical error bars and a typical random noise in the positions of the points.

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