Contribution ID: **49** Type: **not specified**

Electrical Impedance Tomography and the Novikov-Veselov equation

Thursday, September 5, 2019 11:00 AM (45 minutes)

The D-bar method, introduced by Beals and Coifman in the 1980's, provides a solution method for Calderón's inverse conductivity problem in dimension two, as was shown by Nachman in 1996. This presentation shows how Nachman's proof can be developed further to yield the D-bar method, a practical imaging algorithm for Electrical Impedance Tomography (EIT). Furthermore, demonstrated is how machine learning can be combined with the D-bar method for the diagnosis of stroke. Finally, the nonlinear Novikov-Veselov equation can be solved using the inverse scattering method and the same nonlinear Fourier transform than the one used in EIT.

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Session Classification: Morning Session