

# ITERATIVE ASPECTS IN CONJUGATED VEKUA EQUATION

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Abstract. The Vekua equation  $\frac{\partial w}{\partial \bar{z}} = A(z, \bar{z})w + B(z, \bar{z})\bar{w} + F(z, \bar{z})$  is of great importance in the theory of Partial Equations as well as in the theory of Complex Analysis. Here  $w(z, \bar{z}) = u(x, y) + iv(x, y)$  is unknown function, the coefficients  $A(z, \bar{z}), B(z, \bar{z})$  and  $F(z, \bar{z})$  are continuous differentiable functions and  $\frac{\partial w}{\partial \bar{z}}$  is conjugated differentiation operator. In his monograph, Vekua also pointed out to contribution of this equation in finding solutions of many boundary problems in mathematical physics. In this paper we consider a special case  $A(z, \bar{z}) = F(z, \bar{z}) = 0$ . The goal is to solve the Vekua equation by iteration method and to obtain the solution of the second order partial equation.

Keywords. A series-iteration method, The Vekua equation, Contraction coefficient