Newton-PCG Method for Solving Chandrasekhar's H-Equation

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In this talk, we present the Newton-PCG method for solving the Chandrasekhar's H-equation. When the Chandrasekhar's H-equation is discretized, we prove that this equation has a solution and give the condition of the uniqueness of solution. Moreover, the convergence of the fixed point iteration is obtained. To further accelerate the algorithm, the Newton-PCG method can be used to the discretized Chandrasekhar's H-equation. The convergence of the Newton-PCG method is also analyzed in detail. Numerical experiments show that Newton-PCG method is effective for solving the Chandrasekhar's H-equation.

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