

## Special Program in Applied Mathematics and Applied Mechanics

*HCLP as dynamic systems*

2015 - 04 - 23 (Thu.)

09:00 - 10:00

308, Mathematics Research Center Building (ori. New Math. Bldg.)

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Now available works can transformed the optimization programming problem into the corresponding horizontal linear complementarity problem(abbreviated as HLCP). The study of HLCP as a dynamic system has some important benefits by using Karmakar's projection matrix and KKT disturbing system. We obtain two results in our research. The first one is to cast projection matrix [9] derived from KKT system as a solution to ordinary differential equations. This is actually a vector analytic fields on Grassmann manifold. Another one is to directly convert a HLCP into a dynamic system. During this process, we prove that one of the solution of HLCP comes from famous Riccati(even Bernoulli) equation. Due to this, our results can be a new method for solving HLCP and optimization programming problem.

Keywords: optimization programming problem ; HCLP ; centre path ; KKT perturbed system ; Grassmann manifolds ; Projective matrix



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