**Invited Talk Abstract**

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# New Results on the Majorization Schemes for Nonconvex Constrained Optimization

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| **Date** | July 27, 2026 |
| **Time** | 13:30–14:00 |
| **Session** | Session 2 |
| **Venue** | Department of Mathematics, National Taiwan Normal University, Taipei, Taiwan |

## Abstract

Constrained nonconvex optimization models are frequently encountered in machine learning research. In this talk, I shall present some new results (based on the joint work with Nuozhou Wang and Junyu Zhang) in the study of convex surrogation that majorizes the objective and the constraints. In the case where the objective and constraint functions are gradient Holderian continuous, the surrogate functions can be readily constructed, and the solution method can be efficiently implemented. The surrogate envelopes are extended to the setting where the second-order information is available, and the convex subproblems are further represented by the Dikin ellipsoids using the self-concordance of the convex surrogate constraints. Iteration complexities have been developed for both convex and nonconvex optimization models. Preliminary numerical results show the promises of the proposed approaches.