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Wang Kang, senior engineer of Space Star Technology Co., Ltd., Beijing. He received the M.Sc. degree in control engineering from Xiangtan University, Hunan, China, in 2013. His main research interests are intelligent computing, satellite navigation, high-performance signal processing, satellite communication technology, satellite payload and application. He has successively participated in the development of major special satellite navigation receivers such as high score series, space station series and Ocean series.

Speech Title: "Improving the Satellite Selection Efficiency of GNSS Receiver by using Multi-Objective Evolutionary Algorithm"

Abstract: Due to improve the efficiency of satellite selection process of GNSS receivers, this paper proposes a multi-objective satellite selection optimization model considering mode consistency based on a fully analyses of the biased relationship between the two factors of navigation satellite which are spatial geometric distribution and mode consistency in the process of engineering implementation. In the aspect of optimization model design, the undifferentiated observation matrix is defined and the general model of pattern consistency of precision (PCOP) evaluation is established. In the aspect of multi-objective optimization, combined with the characteristics of star selection problem, a gene coding design based on probability factor is proposed. By using the traditional multi-objective evolutionary algorithm architecture for evaluation, this coding strategy has high convergence efficiency. Compared with the random integer coding strategy under the same optimization algorithm architecture, the coding strategy designed in this paper ensures better convergence and better distribution.