

Summary

We are the team of XIDIAN University, including captain Shuang Liu, team members Lidong Fan and Xiaowen Gan. Shuang Liu's research direction is the vertical structure of wide bandgap power semiconductor devices. Lidong Fan's research direction is the first principle study of two-dimensional materials. Xiaowen Gan's research direction is RF front-end circuit design.

Based on the problems of the traditional four-quadrant, this project firstly designed a new four-image limit position sensor, which is ingeniously inlaid by four optoelectronic semiconductors and three-dimensional cross gap structure. Then, based on the new positioning sensor designed by ourselves, a one-dimensional positioning system with the first quadrant Q1 and the second quadrant Q2 centerline as the positioning target is designed. Finally, based on the hardware implementation of the positioning system, the proposed double-difference algorithm transforms the output difference between the traditional four-quadrant sensor and multiple quadrants into the output quadrant of the single-quadrant before and after the pulse laser is turned on, which solves the inconsistency of the output signals of each quadrant.