

Interdisciplinary research on microelectronics undergraduate education

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Abstract

A high degree combination of theory and practice is the primary characteristic of IC talent education. Therefore, practical training is necessary to cultivate versatile IC talents with creativity and engineering skill. However, due to the limitations of teaching conditions and teaching philosophy, the teaching of microelectronics or other IC-related undergraduate majors are mostly based on theoretical courses, but the practical content is not sufficient. In this paper, we will present how we guide undergraduate students participate in interdisciplinary research in Beihang University. During this process, we involved undergraduates in exploration of intelligent identification of two-dimensional materials via machine-learning assisted optical microscopy and published the research article in the journal of Nano Research. After that, we led undergraduates into research of intelligent characterization of magnetic materials through Kerr microscopy. Taking students into the research process allows undergraduates to experience the scientific research process of observing phenomena, identifying problems, analyzing problems and finally solving problems based on what they have learned, realizing the development of engineering practical ability.

Keywords

Undergraduate Education, Interdisciplinary Research, Microelectronics, Nanotechnology, Machine-learning