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## Piezoelectric positioning system technology for modulation of electrochemical imaging detection device

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The piezoelectric ceramic positioning system is considered to be the high-precision positioning device in the electrochemical imaging detector, which can achieve the nanometer scale displacement resolution. This paper describes in detail the principle of output displacement measuring for piezoelectric ceramic by the resistance strain gauge. In addition, by employing the self-built drive circuit and the displacement detecting circuit, integrated piezoelectric ceramic resistance strain gauge sensor has been investigated under both open-loop and closed-loop control, respectively. Under the closed-loop control testing, with a classic PID algorithm was applied. Test results show that, the piezoelectric ceramics in open-loop control exhibits disadvantages of serious non-linearity, hysteresis and creep resistance. However, these issues have been resolved under closed-loop control.

### Biography

Wei Wang is an Associate Professor, Master of Electronic Engineering, graduated from Jilin University. He has designed and developed a variety of analytical detection equipments and obtained progress Award of Jilin Province Science and Technology in nano-structured composites and analysis instrumentation aspects in 2008.

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