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Digital Lock-in Amplifier based on Soundcard Interface for Physics Laboratory

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The purpose of this paper is to develop a digital lock-in amplifier based on soundcard interface for undergraduate physics laboratory. Both series and parallel RLC circuit laboratory are tested because of its well-known, easy to understand and simple confirm. The sinusoidal signal at the frequency of 10 Hz –15 kHz is generated to the circuits. The amplitude and phase of the voltage drop across the resistor, R are measured in 10 step decade. The signals from soundcard interface and lock-in amplifier are compared. The results give a good correlation. It indicates that the design digital lock-in amplifier is promising for undergraduate physic laboratory.

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