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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 physics laboratory.

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