

Abstract Submitted
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Auto-tuning system for NMR probe with LabView¹ CARMEN QUEN, OLIVIA V. MATEO, OSCAR BERNAL, Department of Physics and Astronomy, California State University, Los Angeles, CA 90032 — Typical manual NMR-tuning method is not suitable for broadband spectra spanning several megahertz linewidths. Among the main problems encountered during manual tuning are pulse-power reproducibility, baselines, and transmission line reflections, to name a few. We present a design of an auto-tuning system using graphic programming language, LabVIEW, to minimize these problems. The program is designed to analyze the detected power signal of an antenna near the NMR probe and use this analysis to automatically tune the sample coil to match the impedance of the spectrometer (50Ω). The tuning capacitors of the probe are controlled by a stepper motor through a LabVIEW/computer interface. Our program calculates the area of the power signal as an indicator to control the motor so disconnecting the coil to tune it through a network analyzer is unnecessary.

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