

Abstract Submitted
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Proportional-Integral-Derivative (PID) Temperature Control and Data Acquisition System for Faraday Filter based Sodium Spectrometer VARDAN SEMERJYAN, TAO YUAN, Utah State University — Sodium (Na) Faraday filters based spectrometer is a relatively new instrument to study sodium nightglow as well as sodium and oxygen chemistry in the mesopause region. Successful spectrometer measurement demands highly accurate control of filter temperature. The ideal, long-term operation site for the Na spectrometer is an isolated location with minimum nocturnal sky background. Thus, the remote control of the filter temperature is a requirement for such operation, whereas current temperature controllers can only be operated manually. The proposed approach is aimed to not only enhance the temperature control, but also achieve spectrometer's remote and autonomous operation. In the meantime, the redesign should relief the burden of the cost for multi temperature controllers. The program will give to the operator flexibility in setting the operation temperatures of the Faraday filters, monitoring the temperature variations, and logging the data during the operation. Research will make diligent efforts to attach preliminary data analysis subroutine to the main control program. The real-time observation results will be posted online after the observation is completed. This approach also can be a good substitute for the temperature control system currently used to run the Lidar system at Utah State University(USU).

Vardan Semerjyan
Author

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