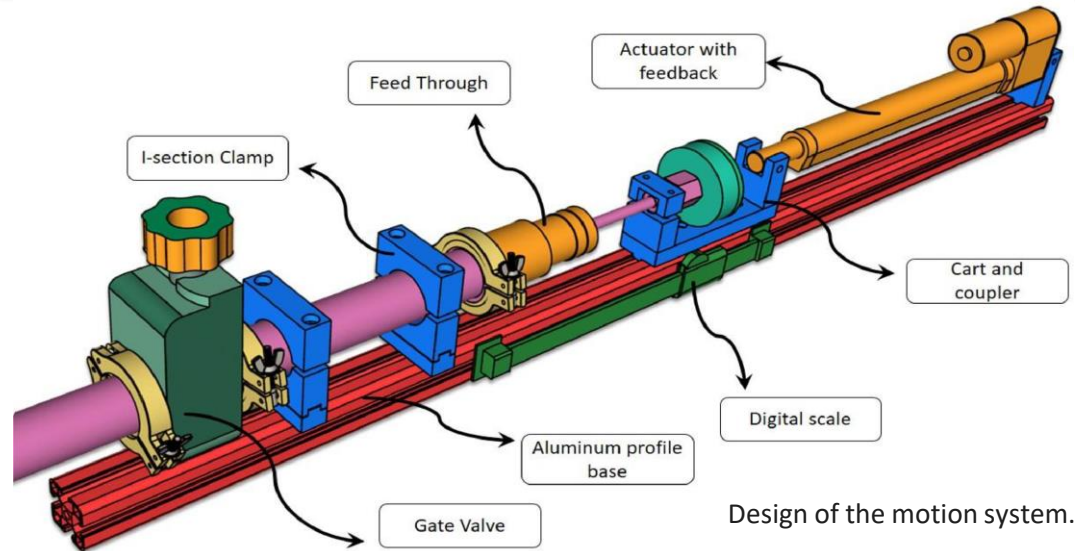
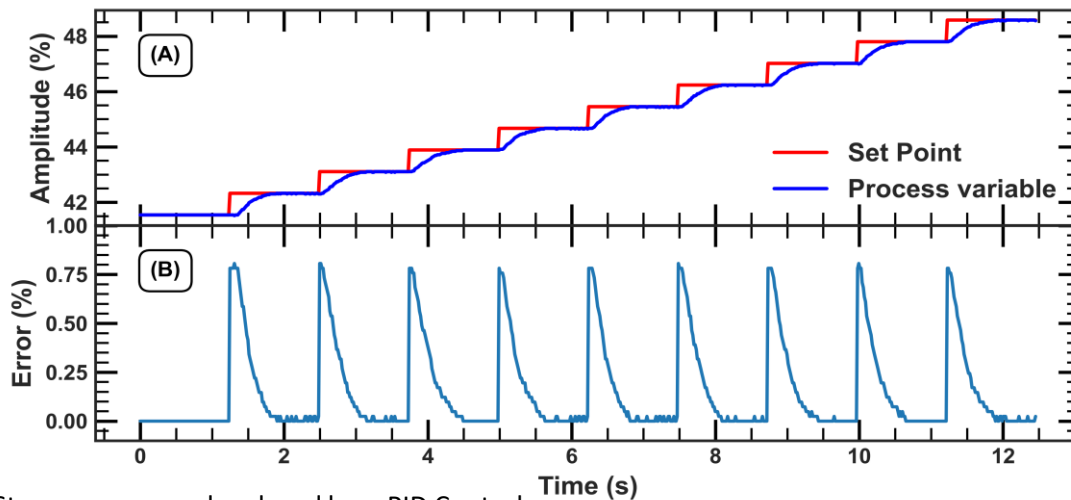


Automated plasma probing system for laboratory experiments in high vacuum using closed loop control

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An automated plasma probing system has been developed, utilizing PC-based control and servo motor-driven linear actuators. The design involves modular low-cost components, making it economically viable for small-scale experiments to operate the system in challenging environments of high vacuum and magnetic fields. Precise positioning of ± 0.2 mm is achieved with the help of a well tuned, feedback-controlled PID algorithm for simultaneous measurements of sensor data with high spatial resolution of plasma diagnostics. Additionally auto-measurement of the digital scale and pressure gauge readings through a serial instrumentation interface improve accuracy and provide a reliable solution for probing plasma column.



Step response under closed loop PID Control