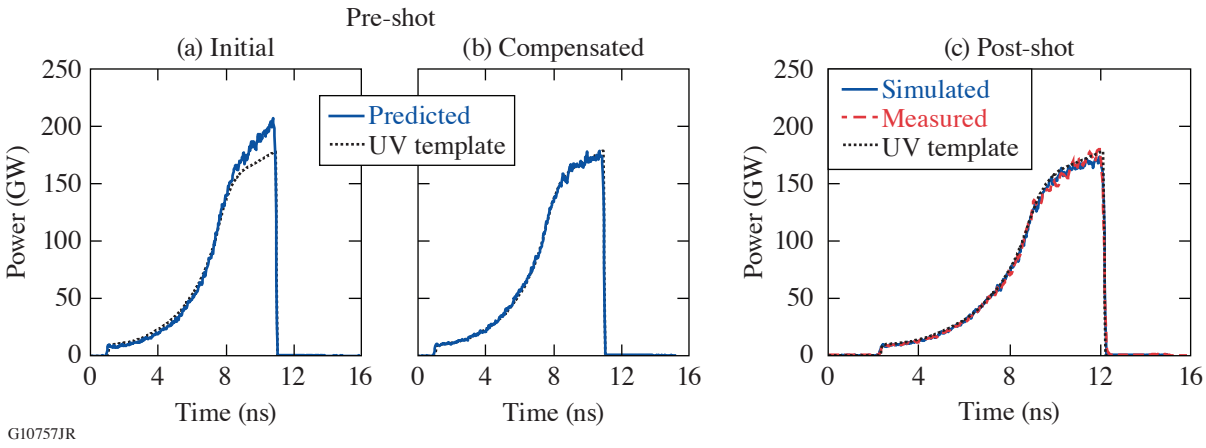
## About the Cover:

The cover depicts a new predictive capability for the OMEGA EP Laser System. This is made possible by *PSOPS*, a MATLAB-based semi-analytic model, which takes as inputs numerous measurements along the amplifier chain and has enabled enhancements to the system as well as experimental flexibility to users (see p. 211). The top plot shows a *PSOPS*-simulated temporal pulse shape compared to the corresponding on-shot measured pulse and requested UV template shape. As well as predicting the temporal pulse shape, *PSOPS* also simulates the UV near-field spatial beam profile, which is shown on the bottom of the cover compared to the measured near-field profile. Both the temporal and spatial on-shot measurements are in excellent agreement with predictions by the *PSOPS* model. Overall, this enhanced predictive capability allows operations to account for system drifts and better deliver requested pulse shapes for valuable user experiments.

The figure below shows how *PSOPS* is used during shot preparations to adjust a pulse shape to match the requested UV shape. Drifts in system performance can lead to noticeable deviations between simulated and achieved pulse shapes. Panel (a) shows a shot day *PSOPS* pre-shot prediction that departs from the ideal shape near the end of the pulse. Based on this prediction, the input pulse shape was modified to provide the compensated pre-shot prediction shown in panel (b). The post-shot UV simulation showed excellent agreement with the measurement [panel (c)].



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