

Design of RF Controls for Precision CW SRF Light Sources

A hierarchical and modular RF system is proposed to meet the stringent precision and stability needs of upcoming SRF linac-based light sources. It combines modern digital controls with proven techniques for phase and timing distribution, and eliminates artificial jitter caused by incoherent clocks. It is designed for systems with one cavity per RF source, as is normally chosen to give good operability for high-Q_L SRF cavities with occasional unpredictable performance limits. Particular attention is paid to system integration issues.

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