

# Precision regulation of radio frequency fields at FLASH

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Highly precise regulation of accelerator RF fields is a prerequisite for a stable and reproducible photon generation at Free Electron Lasers such as FLASH. Due to major improvements of the RF field controls during 2010 and 2011 the FEL performance and the beam stability was significantly improved. This includes beside achieved RF field stabilities in amplitude below the 0.01% (rms) level and in phase below 0.01 (rms) degrees, a higher reproducibility and degree of automation. The cascaded control loop concept will be presented as well as an outlook for further improvements in the regulation and automation strategy.

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