



Contribution ID: 34

Type: poster

The on-line nonlinearities measurements of the VUV-FEL accelerator RF- stations high power chain.

Tuesday, 11 October 2005 10:26 (3 minutes)

As every high power amplifier also the pulse microwave 10 MW klystrons (in the VUV-FEL accelerator) have nonlinear output power vs. input power characteristic near to the device saturation point. This undesirable behavior of the tube amplifier may cause lower efficiency of the close loop RF field regulation in LLRF control system.

In order to provide a solution for existing distortion compensation it is necessary to examine each of the RF-power station. The main goal is then designing and establishing an on-line measurement system and appropriate procedures that would give comprehensive knowledge about distortions introduced by the klystron and power preamplifiers and will be transparent for regular accelerator operation.

In this paper the problems concerning appropriate amplifiers characterization as well as propositions for on-line nonlinearities monitoring will be discussed. Also the currently used solutions for the high power amplifiers linearisation will be presented and a proposition for VUV-FEL RF-station high power chains distortion compensation will be described.

Primary author: Mr CICHALEWSKI, Wojciech (Technical University of Lodz)

Co-authors: Mr KOSEDA, Boguslaw (Technical University of Lodz); Dr SIMROCK, Stefan (DESY)

Presenter: Mr CICHALEWSKI, Wojciech (Technical University of Lodz)

Session Classification: Poster Session with Author Participation