Contribution ID: **31** Type: **Poster Presentation**

GW-class relativistic backward-wave oscillator with pulse duration above 200 ns

Wednesday 6 July 2016 14:40 (20 minutes)

The physical idea, specific structure and main testing results of a GW-class S-band relativistic backward-wave oscillator (RBWO) with pulse duration above 200 ns are presented. To restrain the "pulse shortening"phenomenon, special attentions are paid on two aspects in our designing. One is to optimize the electrodynamic structures to decrease the electric field on the surfaces of slow-wave structures (SWSs) while maintaining relative high beam-wave conversion efficiency. The other is to increase the smoothness and cleanness on the surfaces of SWSs and improve the vacuum level to elevate the breakdown threshold. In the initial experiment, a microwave with frequency of 3.71 GHz, power of 1.5 GW, efficiency of 30%, and pulse duration above 200 ns is generated. This is the first experimental report of GW-class RBWO with pulse duration above 200 ns.

Authors: Prof. YANG, Jianhua (National University of Defense Technology); Prof. ZHANG, Jun (National University of Defense Technology); Prof. SHU, Ting (National University of Defense Technology); Dr GE, Xingjun (National University of Defense Technology); Dr JIN, Zhenxing (National University of Defense Technology)

Presenter: Dr GE, Xingjun (National University of Defense Technology)

Session Classification: Poster 1-A

Track Classification: Repetitive Pulsed Power Systems, Repetitive Pulsed Magnetics, Accelerators, Beams, High Power Microwaves, and High Power Pulse Antennas