Amur Margaryan, J Laser Opt Photonics 2017, 4:4 (Suppl)
DOI: 10.4172/2469-410X-C1-017

Time tagged time resolved single photon counting technique for quantum astronomy applications

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A time-tagged, time-resolved single photon THz counting system, based on the recently-developed, GHz, radio-frequency photomultiplier tube (RF PMT) is considered. The detection and readout systems of the RF PMT are based on commercial multichannel plates, electron bombardment avalanche photodiodes and regular nanosecond electronics. The proposed technique is capable of detecting single photons with 1 ps resolution over virtually unlimited time spans. Over a period of around 100 ns the technique is capable of THz rates, while longer term average rates of up to GHz can be achieved. In principle, with a dedicated spiral scanning system and electron detector, the rate could be increased up to the THz level. Possible application in Quantum Astronomy is discussed.

Biography

Amur Margaryan has completed his PhD from Yerevan Physics Institute and continued studies in the field of Experimental Nuclear Physics at Yerevan Physics Institute; Serpukhov proton accelerator, Serpukhov, Moscow region; JLab, Newport News, VA, USA; MAX-lab, Lund, Sweden; GRAAL experiment at European Synchrotron Radiation Facility in Grenoble, France. He is the Leading Scientific Researcher at A I Alikhanyan National Science Laboratory (Yerevan Physics Institute). He has published more than 150 papers in reputed journals. He holds one Soviet Union and one US patent. His current research interest is in ultrafast photon detectors and optoelectronic devices.

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