Fédération Sciences Plasmas Fusion

Année universitaire / Academic year 2020-2021

PROPOSITION DE STAGE / INTERNSHIP PROPOSAL

Organisme / Institution : Aix-Marseille Université
Laboratoire / Laboratory : PIIM -CIML
Adresse du lieu de stage / Lab address : *Campus de Saint-Jérôme; Service C21, Avenue Escadrille Normandie-Niémen, 13397 Marseille cedex 20*
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Conditions de stage (rémunération, voyage, logement, cantine, …) / internship conditions (salary, travel, lodging, food,…) : rémunération possible

"Time-Tagging system for photon-counting applications"

Quantum Optics have led in the last decade to new fields and applications as quantum communication and quantum processing. In a significant amount of the experimental protocols, the measurement of photon pair correlation is needed. Detection systems usually consist in a pair of photon detectors (photo multipliers or avalanche photodiodes) followed by a time tagging system.

In the context of this stage, we propose to explore the possibility to use low cost microcontroller technologies to use as a high resolution and cost effective time tagging system with a maximum theoretical time resolution of the order of 1ns, sufficient for many practical situations. The student will program the development board Teensy4.0 using the Arduino ecosystem development resources.