



## **LUIS CABALLERO ONTANAYA** **HYBRID GAMMA AND ULTRA-** **SOUND IMAGING DEVICE FOR** **BREAST CANCER BIOPSY**

Breast cancer is the most frequent cancer among women. As with most other types of cancer, breast cancer is more easily treated at an early stage, before it has had the chance to spread to other tissues. Although mammography is considered to be the gold standard, most abnormal mammograms are false-positive findings that require breast biopsy to obtain cells for microscopic evaluation from a suspicious breast lesion. Given the heterogeneous nature of cancer, the quality of the biopsy can significantly affect the ability to direct therapy to the appropriate oncologic pathway. Due to the limitation of the current biopsy guiding techniques, oncologists usually rely on limited samples of cancer tissue that does not necessarily represent tumour heterogeneity in patients. The most extended breast biopsy procedure consists of ultrasound image-guided biopsy based on previous mammographic findings. All the devices involved in molecular breast imaging are based on detection of gamma-rays emitted by a radiotracer injected in the patient for which the tumour is avid. In none of these state-of-the-art devices, combined morphologic and metabolic information is delivered in real-time. Thus, it would be a breakthrough to provide a complementary method that provides functional information about lesions seen on ultrasound. As a solution, in this presentation I will show the development of a novel device that co-registers advanced gamma-ray imaging techniques with ultrasound images to guide breast biopsies according to the anatomical and functional information provided. This device will integrate in (quasi) real-time an accurate morphological imaging technique such as ultrasound with the benefits of molecular imaging to discriminate tumour heterogeneity, opening the access to targeted breast cancer treatments based on selective tumour samples resolving heterogeneities, meaning a reduction in false positives and recalls, reducing patient stress and anxiety, and improving patient diagnosis and prognosis.

### **i3M Seminar**



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#### **DATE AND PLACE**

09.02.2022 at 10:00

Salón de actos, Cubo rojo  
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