

## Dedicated detectors for OB/GYN

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Endocervical adenocarcinoma, endometrial and ovarian cancer in Lynch syndrome, and neuroendocrine prostate are examples of rare serious diseases of the pelvic region, whose early diagnosis is very difficult. with the present day diagnostic technology. Moreover, surgical treatment of these cancers is invasive, expensive and inefficient, in particular in their advanced stages. As a result, radical surgery, radiotherapy and chemotherapy applied in these cases treat the involved organ in a standard uniform way instead of offering a patient/case-tailored approach. Improved early diagnosis defining the exact cancer location, spread, and its margins, could lead to targeted treatments, thus raising over-all survival and sparing from side effects such as infertility in women and incontinence and impotence in men. A powerful novel multimodality imaging system of the pelvic region composed of an endorectal/intravaginal TOF-PET (or SPECT) MR-compatible imaging probe operating with a set of external TOF-PET panels is proposed Application of the probe would lead to unprecedented improved performances in spatial resolution and efficiency that would be of fundamental importance in the diagnosis and management of the mentioned diseases. Image fusion with MRI would enable co-registered merged visualization of anatomic and metabolic information.

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