ELEVATOR PITCHES

DETAILS

FIRST NAME: Hana
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Description of your activity (500 characters):

Developments of NMR/MRI methods which consist on modeling NMR signal interactions with biological tissues at micro/nanometer scale, especially focused on brain tumors. Methods as microscopic 3D DTI for tumor cell migration, quantitative tumor blood volume, CEST-MRI for tumor pH mapping and quantitative relaxometry for cellular MRI, were validated. My activity is now focused on Fast-Fields Cycling NMR/MRI, a new modality to study the water molecular dynamics that are invisible by standard NMR/MRI.

Project description (1000 characters):

Fast field Cycling NMR in cancer

Fast Field Cycling Nuclear Magnetic Resonance (FFC-NMR) which measures relaxation times T1 at different magnetic fields (T1-dispersion profiles) in low regime <1Tesla provides molecular dynamics information. This project is a part of the European project H2020 IDentIFY (Improving Diagnosis by Fast Field Cycling MRI) and aims to highlight the role of the FFC-NMR/MRI in medicine. The project includes methods for signal acquisitions as well as the development of models to describe T1 dispersion curves in order to identify innovative FFC “biomarkers”. In parallel, FFC-MRI is under construction and set-up, including technical developments (magnetic field stabilization and homogenization) with the ambition to reach very low magnetic fields below earth field value. Results distinguishing infiltrative cell tumor from solid cells were recently obtained highlighting the relevant role of FFC-NMR/MRI in detecting infiltrative cancer cells which is still challenging in clinic

Partnership objectives and opportunities (250 characters):

My objective is to establish a partnership around the role of the molecular dynamics of the water in cancer by FFC-NMR/MRI. The project should be multidisciplinary involving clinicians and scientist specialist in cancer, particularly brain and breast

To be sent to stephanie.dhont@matwin.fr