

During Prof. Dr. Marco Antonio Utrera Martines' work mission at Centre d'Elaboration de Matériaux et d'Etudes Structurales (CEMES-CNRS) - Université Paul Sabatier (Toulouse III), in France, he carried out research activities involving multifunctional Au and Ta<sub>2</sub>O<sub>5</sub> nanoparticles for Magnetic Resonance Imaging (MRI) and Computed Tomography (CT) in the CEMES-CNRS laboratory. Magnetic Resonance Imaging (MRI) produces thin-slice images (tomographic images) using a magnetic field and radio waves, while Computed Tomography (CT) consists of images taken in rotation resulting in a full cross-sectional image using X-rays. CT scans were performed at the 'Institut Universitaire du Cancer de Toulouse (Oncopole)' in collaboration with Dr. Carine Pestourie, while the MRI images at the "Toulouse Neuro Imaging Center (ToNIC)" of the University Hospital of Paul Sabatier University in collaboration with Dr. Jean-Pierre Desirat. Data processing, interpretation and discussion of results were carried out at CEMES in collaboration with Prof. Dr. Marc Verelst.