**Improved COVID-19 diagnosis**

Development of deep learning algorithm for improved COVID-19 diagnosis in CT scans in collaboration with FORTH and the University of Crete.

**Surveillance of SARS-CoV-2 diffusion in environmental samples (wastewater and airborne particles)**

Development of bioinformatics algorithms for comprehensive data analysis and experimental workflow for SARS-CoV-2 and other pathogen identification using microarray technology in collaboration with the University of Pennsylvania and Agilent Technologies (USA). The Pathochip technology that has been developed by the two US partners will be used in samples of sewage waste and airborne particulate matter to provide early warning of the dispersion of the virus in large metropolitan communities. The results are seamlessly linked to the CORE computational platform developed by AUTH to estimate the spatial and temporal dynamics of the health risk from COVID-19, providing thus the opportunity for way earlier warning and more accurate predictions of the respective pressure on the national healthcare system and on the associated public health risk for a period of two months.

**Link of metal exposure with increased adverse health outcomes of COVID-19**

Development of an integrated methodology and exploration of the importance that chemical exposures through the environment and diet such as exposures to metals have on the adverse health outcomes of COVID-19. This is a large-scale international effort involving scientific teams from all over the world (USA, Russia, Brasil, Greece, etc.) that has led to the identification and quantification of the role that metal exposure of susceptible individuals may have on morbidity and mortality attributed to COVID-19.