



### **PROTINUS - PROviding new insight into INteractions between soil fUnctions and Structure MSCA-ITN**

The PROTINUS proposal assembles a multi-disciplinary team to combine advanced, applied and theoretical research to create a new standard in imaging, analysing, modelling and predicting the interactions between soil structure and soil functions. Soil structure impacts a whole range of services soil renders to ecosystems, including for example contaminant filtering, carbon storage, root growth, and microbiological diversity.

By using modern imaging, image analysis and modelling techniques, we will develop an integrated approach to perform experiments in soil physics, bio-chemistry, to reconstruct soil structure in 3D and to model soil processes. The evaluated models will be used for predicting the different services soil renders to ecosystems in a dynamic way and for testing classical theory, where soil structure is not directly taken into account. To do so we will bring together the theoretical and practical expertise of the involved researchers, infrastructure of the partnering institutes, soil samples and databases.

The first stage will investigate today's best practise in experimental soil science and imaging, data analysis and modelling. Our findings will enable our second stage approach where synergies between the different disciplines will be explored. The third stage will provide the cornerstone of a new unified methodology meant to modify practise and outcomes of current experimental/imaging, analysis and modelling approaches. Our final stage will look at the changes brought to each of the specific research area's practises and how it impacts the understanding of soil structure and its functions.

It is expected that our proposal will foster bilateral collaborations within Europe and with our overseas partners through local and international funding, shared database and infrastructure management, and lead to the creation of a sustainable international network of researchers, infrastructure and institutes.

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UNIVERSITÀ  
DEGLI STUDI  
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**Find out more:** <http://www.protinus.ird.fr/>