**PhD program for which it is intended:** Molecular Medicine, Neuroscience and Experimental Neurology

**Title of the project:** BRAIN NETWORK DEGENERATION ASSESSED USING MULTIMODAL MRI TO EXPLAIN CLINICAL VARIABILITY IN ALZHEIMER’S DISEASE

**Link:**
http://www.unisr.it/persona.asp?id=7025

**Description:**
Why an individual with Alzheimer’s disease (AD) pathology develops an amnestic, dysexecutive, language, or visuospatial phenotype? The factors driving AD clinicoanatomical heterogeneity are not well understood. A plausible mechanism is the spread of disease via distinct brain networks. We will use MRI to identify similarities and differences in the patterns of altered structural and functional brain networks across the AD spectrum comparing patients with early onset AD and AD focal variants with those with the typical amnestic syndrome. We will also explore the progression of structural and functional brain changes relative to the clinical evolution of each syndrome. The multimodal/longitudinal design would help to address the progressive alterations of brain networks, the temporal sequence of structural and functional abnormalities, and the associations between network changes and clinical symptoms in atypical vs typical AD. Addressing these questions may yield novel insights into the AD pathophysiology.

**Key references:**