

Title: *The Early Toarcian anoxic event and source rock potential: case histories from the Central Italy*

Name of the supervisor: **Simonetta Cirilli**

Name(s) of a potential co-supervisor(s)

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Prospective **assistance** in the supervision (Lab activity, fieldwork,):

description of the planned research

Introduction: The Early Toarcian facies enriched in organic matter represent a significant target for oil exploration as source rocks. This organic rich facies (black shales) are related to the Early Toarcian anoxic event occurred more or less synchronously in several European basins. This widespread event has been linked to a global perturbation of the carbon cycle and marine biological change, coinciding with a marked global transgression and increase in organic carbon burial.

objectives,

- To characterize the organic facies, to quantify the TOC and other geochemical parameters.
- To define how the physiography of the sedimentary basin controls the amount, typology and preservation of organic matter and its dilution within the mineral fraction in order to provide the main tools to predict the potentiality of shaly deposits to be good source rock.

study area: The Central Northern Apennine, where Early Toarcian successions enriched in organic carbon crops out (e.g. Marne del Monte Serrone Fm.).

Research methods foreseen

Field works on selected outcrops where detailed sedimentological and stratigraphical analyses will be performed and significative samples collected.

Laboratory analyses will be performed on representative samples. Organic matter analysis, organic geochemistry. Additional analyses by means Raman, FTIR absorption and spettroscopy will be scheduled.