

RESEARCH TOPIC: BASIN ANALYSIS AND HYDROCARBON GEOLOGY

TITLE: Impact of Diagenesis on Reservoir quality evolution and origin of H₂S in Jurassic gas reservoirs, UAE

SUPERVISORS: Prof. Andrea Di Giulio, Prof. Andrea Ceriani

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POSITION AS DOCTORAL RESEARCH FELLOWSHIPS (PhD) in Diagenesis of carbonate reservoirs is available at the Department of Earth and Environmental Sciences, the University of Pavia (Italy).

Job description: Applications are invited for a research fellowship (PhD) position in reservoir diagenesis at the Department of earth and Environmental Sciences, University of Pavia, Italy.

Diagenesis of carbonate reservoirs

The Jurassic Arab Formation is important oil and gas reservoirs in Abu Dhabi, United Arab Emirates. The formation is lithologically characterized by interbedded limestone, dolostone and anhydrite. Many of the Arab gas reservoirs are heterogeneous and contain variable proportions of H₂S even within the same field, which deteriorate the gas quality.

The Ph.D. fellow will work in interdisciplinary teams from the University of Pavia (Italy), IFP (France), Oslo (Norway) and the Petroleum Institute of Abu Dhabi (United Arabian Emirates). The objectives of the project are: (1) to elucidate the spatial and temporal distribution of reservoir quality by linking diagenesis to sequence stratigraphy and depositional facies; (2) to interpret the conditions of diagenetic alterations and of their impact on reservoir quality; (3) to investigate the origin, timing and mechanism of TSR during burial diagenesis of the Jurassic Arab Formation, hence to predict the distribution of H₂S and comprehend the relationship of TSR rate and depositional facies.

Required qualifications: The candidate should have a strong background and/or interest in

- Knowledge or understanding of carbonate sequence stratigraphy;
- Knowledge or willingness to learn core-based studies;
- Application of petrography to elucidate diagenesis of carbonate succession;
- Application of geo-statistical analyses using integrated diagenesis-facies data to obtain 2D and 3D porosity-permeability distribution models;

- Knowledge or willingness to learn the use of software for modelling depositional/burial/geochemical history of carbonate successions

Research fellowship applicants must hold a Master degree (or an equivalent level of education) relevant for a PhD-study in the above mentioned specialties.

Personal qualifications: The candidate should have good knowledge of English (oral and written), the ability to work in a team as well as independently, and be well structured and organized. Nevertheless the PhD student will be based in Pavia, the project implies period abroad both in Paris (IFP, France) and Abu Dhabi (UAE). Costs for travelling and accommodation will be provided.

Submission: The position requires admission to the PhD program at the University of Pavia.

REFERENCE PERSONS

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