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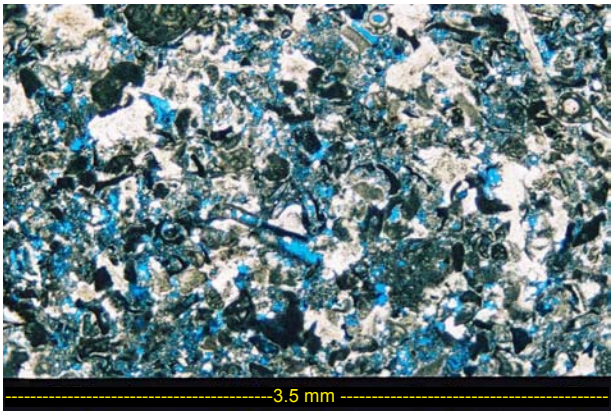
Research areas:

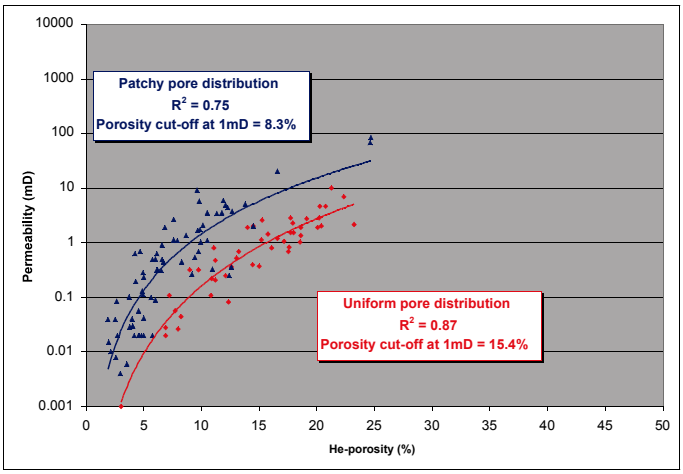
My present research activities are related to pore types within carbonate systems and their effect on reservoir properties. The most widely used pore type systems are limited by the fact that the relation between porosity and permeability is poorly defined. In many carbonate reservoirs it is therefore difficult to generate predictive models for reservoir quality distribution, giving significant uncertainty in STOOIP calculations.

A new pore type classification system is being developed which better integrates sedimentology, diagenesis and flow-related properties. Reservoir critical parameters can thus be predicted using sedimentological and diagenetic models. The new classification system has a significant impact on porosity-permeability relationships, which strongly affects porosity cut-off. This further controls net/gross in hydrocarbon reservoirs. Simple models indicate that calculated STOOIP may vary with several hundred percent just based on pore type, and pore types can thus be one of the most important parameters in the economic evaluation of a prospect or field.

Further research is aiming at using the new pore type classification system in understandig variability of several other reservoir parameters. These parameters include capillary pressures, cementation factor and recovery factor. Furthermore, a new method for defining effective porosity (without applying porosity cut-off) in carbonate reservoirs is being developed.



Thin section micrograph of interparticle microporosity



Porosity-permeability cross-plot of interparticle micro-porosity with uniform and patchy pore distribution

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