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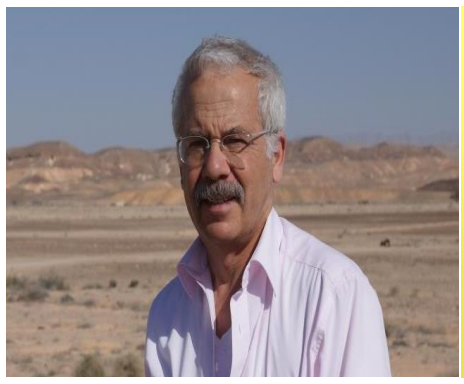

Dr. Pierre M. Adler

UPMC-Metis, Paris

Dr Pierre M. Adler holds Engineering degree from the Ecole Centrale de Paris and PhD in Physical Sciences from Université de Paris-VI. His expertise is in fluid flow, transport processes and physical properties of geological porous and fractured materials and rocks with applications in oil recovery. He is the author and co-author of over 250 journal publications and four books in these areas. He had been and still serves on the editorial boards of prestigious journals, including Applied Mechanics Reviews (Assoc Editor), Journal of Colloid and Interface Science, Transport in Porous Media (Assoc Editor) and Colloids and Surface A. Dr Adler holds Honorary Doctorate from the State Goupkine Academy of Oil and Gas and had been elected as a corresponding member of the Russian Academy of Natural Sciences.

Will lecture on:

Transport properties of fractured porous media

Fractures which are always present underground drastically modify the transport properties of porous media on the large scale. Applications such as water flows, transport of contaminants, and reservoir models in the oil industry necessitate the prediction of the transport properties of fractured porous media from easily measurable field quantities.

Versatile numerical tools were devised to study these properties extensively; these tools will be briefly presented and illustrated. The results can be rationalized by the introduction of the excluded volume of fractures. When the percolation threshold of the fracture network, and the macroscopic permeability are plotted as functions of P', defined as the number of fractures per excluded volume, they become independent of the fracture shapes which is a decisive simplification for the applications.
P' can be estimated from measurements performed on intersections of fracture networks with lines, planes, and galleries. These intersections are visible on outcrops, cliffs, quarries, wells and tunnels. Some remarkable relations hold whatever the fracture shapes if they are convex.

Applications of this approach to real cases will be discussed.

Monday, June 09, 2014, 14:30
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