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Interactive comment on "Classification and quantification of pore shapes in sandstone reservoir rocks with 3-D X-ray micro-computed tomography" *by* M. Schmitt et al.

Anonymous Referee #2

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The manuscript se-2015-118 reports on a classification of pore shapes of the 3D pore structures of porous rock obtained from X-ray micro-CT. The authors clearly make the case that pores have to be classified in 3D, which has become accessible to a wide audience through commercial micro-CT scanners and image processing software packages like Avizo. The authors also make the case that classification of pore is useful for relating to petrophysical properties like permeability, electrical conductivity etc. What is however less clear is how this relation is then to be made, i.e. how does the classification scheme help to predict petrophysical properties. Is that done via a correlation ? And if yes, which input parameters are most significant for such a correlation ? In the manuscript the authors argue that for various reasons the e.g. Feret diameter is a

useful parameter, but would it also be a key parameter for such correlations ? And how many of such parameters are required ? That point is difficult to make unless there is some sort of theoretical basis that clearly says how many parameters are required for a full description and which ones these are. Here Hadwiger's theorem from integral geometry makes a more clear case for the Minkowski functionals (see reference by Vogel and Schlüter), i.e. there are 4 parameters (volume, interfacial area, mean and integral curvature). So how does the Feret diameter fit into this ?

Interactive comment on Solid Earth Discuss., 7, 3441, 2015.