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Explicit Cross-Property connection between overall electric conductivity and fluid permeability of a porous conductor MANJITA SHRESTHA, New Mexico State University, IGOR SEVOSTIANOV — Here we try to address the problem of cross-property connection between electrical conductivity and fluid permeability of a porous material with conducting solid phase. Variational inequality connecting the said two properties is obtained. Development of explicit closed-form connection is complicated by the fact that the two properties are governed by different microstructural parameters. This complication can be over-passed if certain information on phase distribution is available. As an illustration, material with randomly distributed interconnected phases is discussed in details. The cross-property connection for this case is obtained in closed explicit form.

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