

**EFFECTIVE THERMAL CONDUCTIVITY OF HETEROGENEOUS LYOPHOBIC NANOSYSTEMS FOR USE IN THERMOMECHANICAL ENERGY DEVICES**

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**SUMMARY:** We present the theoretical results of the thermal conductivity of heterogeneous lyophobic nanosystems characterized by the structure with interpenetrating components (solid with communicating pores and liquid nonwetting the solid). The forced intrusion of liquid, which takes place during compression of the system, can be well described using the model of intersecting pores.