1121-35-121 **Yaniv Almog*** (almog@math.lsu.edu), Department of Mathematics, Lockett Hall, LSU, Baton Rouge, LA 70803. *The Clausius-Mossotti formula for dilute random media of perfectly conducting inclusions.*

We consider a large number of randomly dispersed spherical, identical, perfectly conducting inclusions (of infinite conductivity) in a bounded domain. The host medium's conductivity is finite and can be inhomogeneous. In the dilute limit, with some boundedness assumption on a large number (proportional to the global volume fraction raised to the power of $-1/2$) of marginal probability densities, we prove convergence in H^1 norm of the expectation of the solution of the steady state heat equation, to the solution of an effective medium problem, where the conductivity is given by the Clausius-Mossotti formula. Error estimates are provided as well. (Received July 15, 2016)