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Quantitative Homogenization of Convex Hamilton-Jacobi Equations with Prescribed Contact Angle Boundary Conditions on Perforated Domains

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We study the periodic homogenization for convex Hamilton-Jacobi equations on perforated domains under the prescribed contact angle boundary conditions. We first establish the representation formula for viscosity solutions to this problem by using the Skorokhod problem and modified Lagrangians, and observe a simple example to understand this boundary condition. Then, we focus on the recent development of quantitative homogenization theory for convex Hamilton--Jacobi equations in a periodic setting. By using the representation formula, we present how we can establish the optimal rate of convergence of this problem. This is a joint work with Panrui Ni (U. Tokyo).