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Controlling the Degree of Hydrophilicity/Hydrophobicity of Semiconductor Surfaces via Porosification and Metal Deposition

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Abstract

In this paper we present a systematic study of bulk GaAs wafers and gold-decorated GaAs surfaces exhibiting hydrophilic and hydrophobic behaviors. The wetting properties can be switched to superhydrophilicity and superhydrophobicity by simple electrochemical etching providing engineered porous morphologies. The results open interesting technological perspectives for the exploitation of GaAs surfaces.

Keywords: gallium arsenide surfaces, bulk wafers, wafers, gold-decorated surfaces, surfaces, wetting, electrochemical etching, porous morphologies

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