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Spontaneous Formation of a Nanotube from a Square Ag Nanowire¹ SONDAN DURUKANOGLU, Faculty of Engineering and Natural Sciences, Sabanci University, MINE KONUK, Department of Physics, Istanbul Technical University — The recently observed phenomenon of spontaneous formation of a tube from a regular, square Ag nanowire has been investigated through molecular static and dynamic simulations based on the interaction potentials obtained from the embedded atom method. With molecular static calculations, we investigate the effect of strain on this particular type of transformation by focusing specifically on square Ag nanowires. Our results demonstrate that the formation of hollow structures requires a combination of minimum basis size and high gradient stress. Using molecular dynamic simulation, we also discuss the effect of temperature on the evolution of silver nanowire during the elongation.

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Sondan Durukanoglu
Faculty of Engineering and Natural Sciences, Sabanci University

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