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Entitled

FABRICATION AND CHARACTERIZATION OF GERMANIUM TELLURIDE NANOWIRES

by

Shaikha Saeed Mohammed Ayed Alketbi

Faculty Advisor

Dr. Haila M. Aldosari, Department of Physics

College of Science

Date & Venue

3:00 PM

Tuesday, 31 May 2022

Online [Blackboard Collaborate Ultra or Microsoft Teams]

Abstract

Random access memories (RAMs) made from phase change materials (PCMs) are a promising alternative for the flash memory technology, currently dominating the memory market due to its many appealing traits such as non-volatility, fast read/write performance, excellent scalability, and compatibility with complementary metal–oxide–semiconductor (CMOS) architectures. In fact, the scalability of PCMs is driving this class of materials to be the next successor in the memory industry in the near future. Germanium telluride (GeTe) material is one of the most viable PCMs in this context. This thesis fabricated the phase change material GeTe nanowires using the vapor–liquid–solid (VLS) growth method. GeTe nanowires were grown using gold (Au) as the metal catalyst deposited by a novel approach that has not been used before to grow GeTe nanowires, which yielded the synthesis of the smallest < 15 nm GeTe nanowires reported to date.

Keywords: GeTe, nanowires, Au nanoclusters, VLS