

Abstract Submitted  
for the TS4CF08 Meeting of  
The American Physical Society

**The Current State of Semiconducting Silicide Research**<sup>1</sup> RYAN COTTIER, NADER ELMARHOUMI, TERRY GOLDING, Texas State University — Silicon is still the material of choice for most microelectronic applications although it is not the ideal choice for many optoelectronic applications. The twelve semiconducting silicides may bridge this gap. Fundamental energy gaps of the known semiconducting silicides range from 0.07-0.12 eV (hexagonal MoSi<sub>2</sub> and WSi<sub>2</sub>, ReSi<sub>2</sub>) to 2.3 eV (Os<sub>2</sub>Si<sub>3</sub>). With further development, they may provide a background for energy-gap engineering similar to that achieved with III-V compounds in their superlattices. The authors will discuss the current state of semiconducting silicides including our own investigation into the growth and characterization of  $\beta$ -FeSi<sub>2</sub>,  $\beta$ -Fe(SiGe)<sub>2</sub>, OsSi<sub>2</sub>, and Os<sub>2</sub>Si<sub>3</sub>.

<sup>1</sup>Project funded by the Office of Naval Research (Contract No. N00014-03-0820)

Nader Elmarhoumi  
Texas State University

Date submitted: 12 Sep 2008

Electronic form version 1.4