

QUANTUM MATERIALS DEVELOPMENT AND SCALE-UP

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Si/SiGe and B₄C/B₉C quantum well materials have been under development at Hi-Z for more than 5 years, and very favorable thermoelectric properties have been achieved. An efficiency of 14 percent has been measured at a DT of 190°C, and efficiencies of greater than 25 percent are expected with thicker films.

Pacific Northwest National Laboratory will describe their recent progress in depositing superlattice films by magnetron sputtering and efforts to scale up the sputtering deposition process to deposit larger area films with much lower costs. Initial results on deposition of p-type Si/SiGe superlattices and release layers will also be described.