

Abstract Submitted  
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**Thickness-Controlled Synthesis of Colloidal PbS Nanosheets and Their Thickness-Dependent Energy Gaps.** ZHOUFENG JIANG, KAMAL SUBEDI, GHADENDRA BHANDARI, YUFAN HE, MATTHEW LEOPOLD, NICK REILLY, H. PETER LU, ALEXEY ZAYAK, LIANGFENG SUN, Bowling Green State University, BOWLING GREEN STATE UNIVERSITY TEAM — Ultrathin colloidal PbS nanosheets are synthesized using organometallic precursors with chloroalkane cosolvents, resulting in tunable thicknesses ranging from 1.2 nm to 4.6 nm. Corresponding photoluminescence peaks are tuned from 1470 nm to 2175 nm. The one-dimensional confinement energy of these quasi-two-dimensional nanosheets is found to be proportional to  $1/L$  instead of  $1/L^2$  ( $L$  is the thickness of the nanosheet), which is consistent with results calculated using density functional theory.

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