JESSE ORELL*, DAKOTA PARNELL*, JAMES WALTERS*, *Dept. of Applied Science and Mathematics, Bluefield State College, Bluefield, WV 24701. Designing a micro-fluidic chamber for in vivo imaging of larval zebrafish.

Zebrafish (*Danio rerio*) is a unique model organism for whole animal studies of metabolic disease. The optically transparent larval zebrafish allows for direct cell-level observation of physiological processes within living animals. Previous long-term methods for imaging zebrafish have been limited to embryogenesis and early larval stages. This project is to develop a novel microfluidic mounting technique for zebrafish larvae that extends survival and observation times. We used the computer software Solidworks to design a microfluidic slide. The ideal slide would have channels which allow media exchange, nourishment, drug delivery, and waste removal. These elements have been included in the design. We have tested one prototype and found the the Dolomite 3D printer made the larval bed too large. Subsequent prototypes attempt to fix the problems of plastic seepage and continuity of the channnels of the larval chamber as it is being printed. *Supported by NIH Grant P20GM103434 to the West Virginia IDeA Network for Biomedical Research Excellence*