

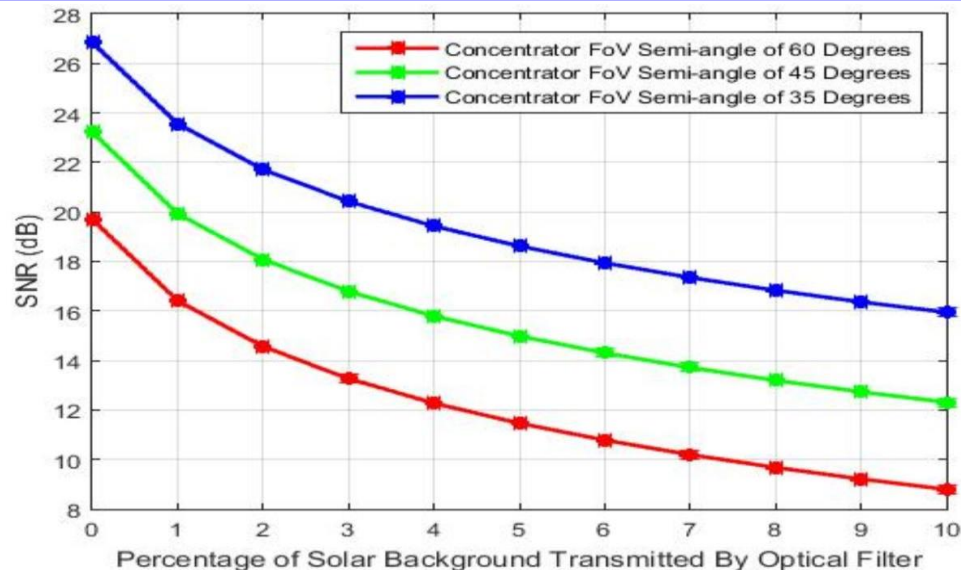


## *David N. Amanor*

*Electrical & Computer Engineering*

*Title: “Visible Light Communication Physical Layer Development for Inter-Satellite Communication”*

*Major Professor: Dr. William W. Edmonson*



### RESEARCH QUESTIONS / PROBLEMS:

- How can we develop the communication subsystem for small satellites that can enable inter-satellite communication (ISC) with significant data-rates?
- Small satellites are constrained by size, mass and power (SMaP)

### METHODS:

- Proposed a visible light communication (VLC) system with prime consideration for SMaP constraints
- Developed analytical model of the VLC inter-satellite link and evaluated impact of solar background for different intensity modulation and direct detection (IM/DD) schemes

### RESULTS / FINDINGS:

- Proposed system suitable for multiple small satellites missions that require nodes with smaller footprints, low power consumption and high data rates

### SIGNIFICANCE / IMPLICATIONS:

- Applicable in both space and terrestrial domains such as connected vehicles, hazardous environments and underwater communications