

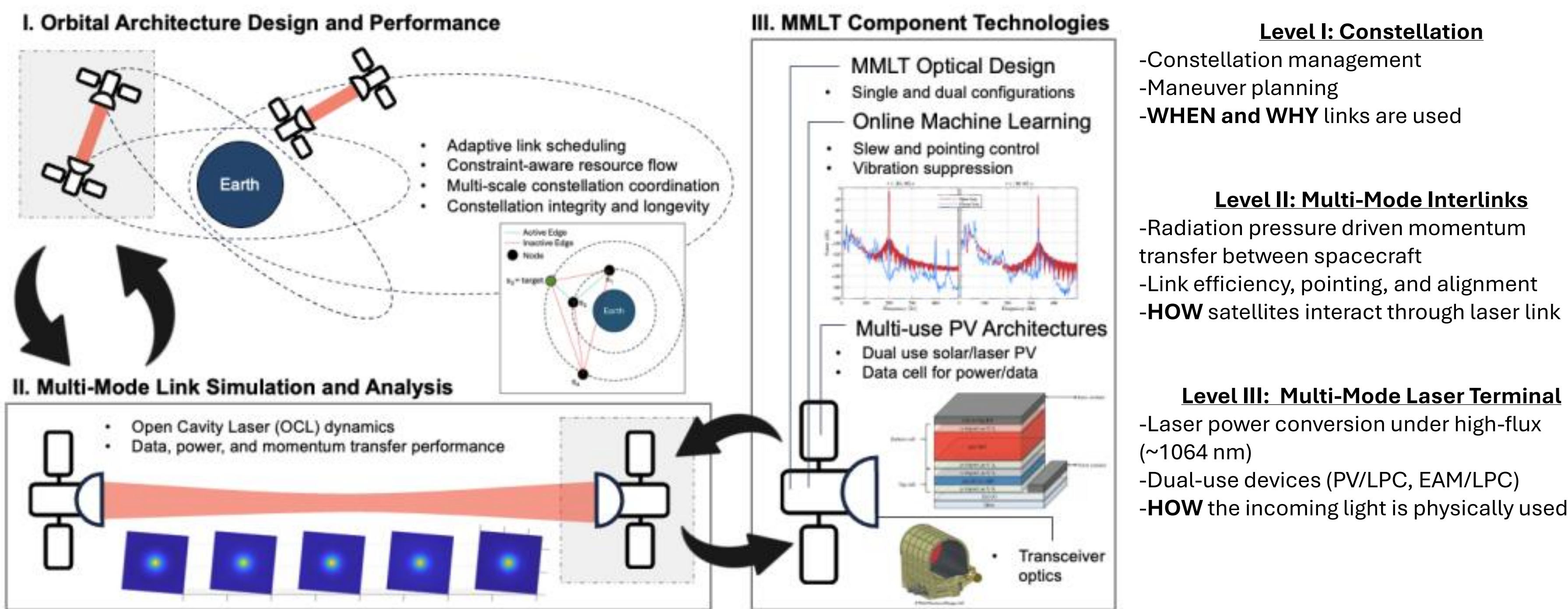
Hybrid Laser Power Converter Architectures for 1064 nm Space Applications

Elijah Sacchitella, Mahan Sahafipourfard, Nikhil Pokharel, Seth Hubbard

Satellite Momentum Transfer via OCL

Open cavity lasers enable satellite propulsion through photon momentum transfer between spacecraft.

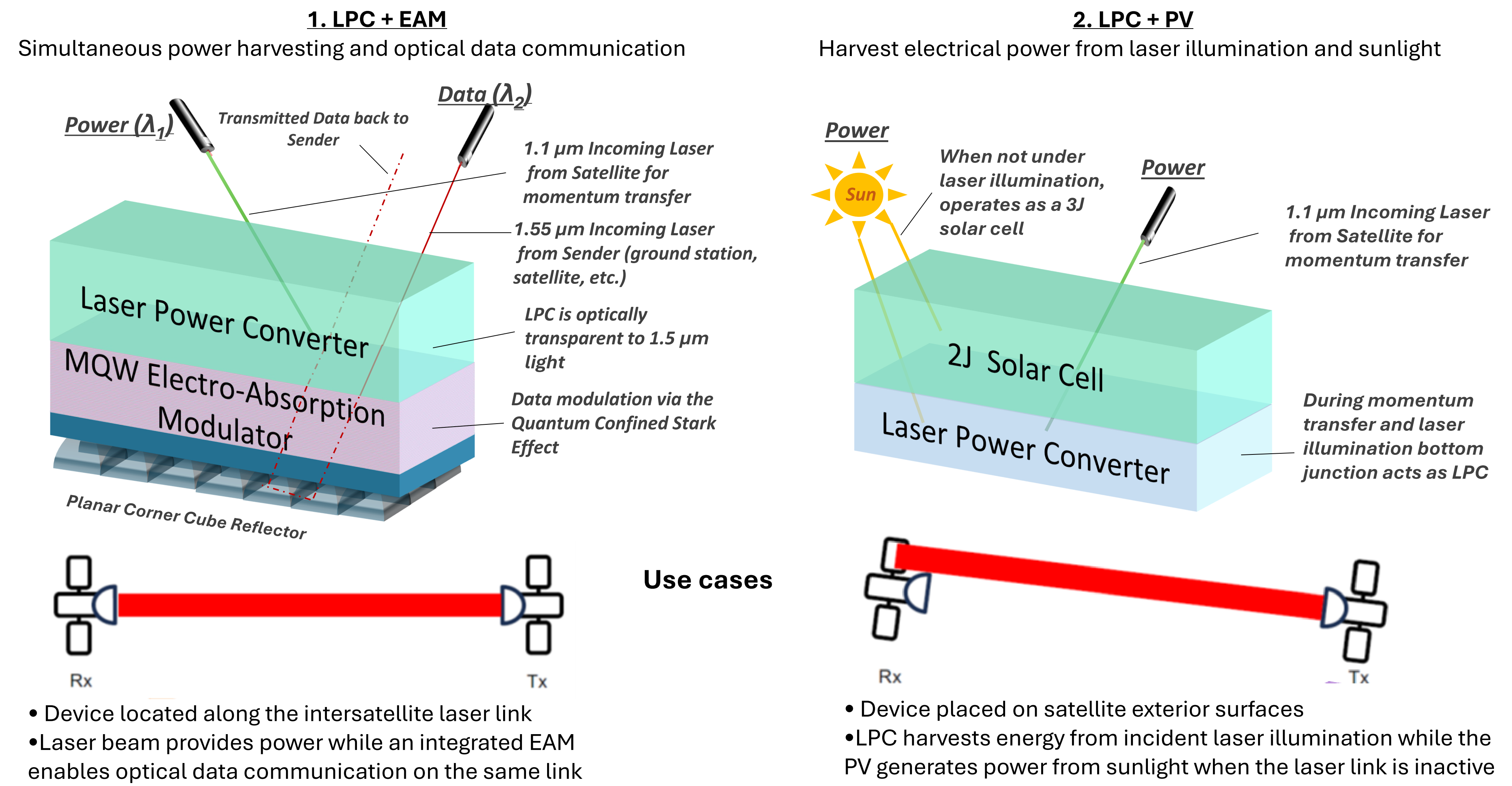
The same optical link delivers high optical power to the receiving spacecraft, motivating dual-use devices that recover this energy and provide additional functionality such as power generation or data communication.



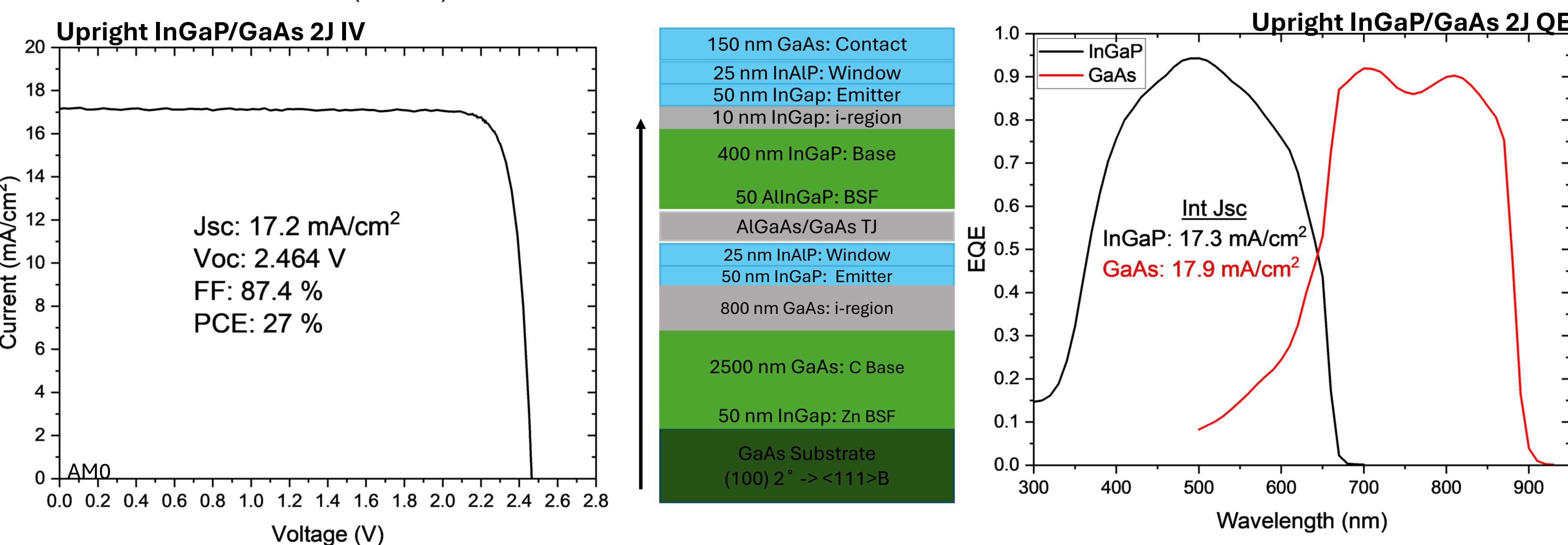
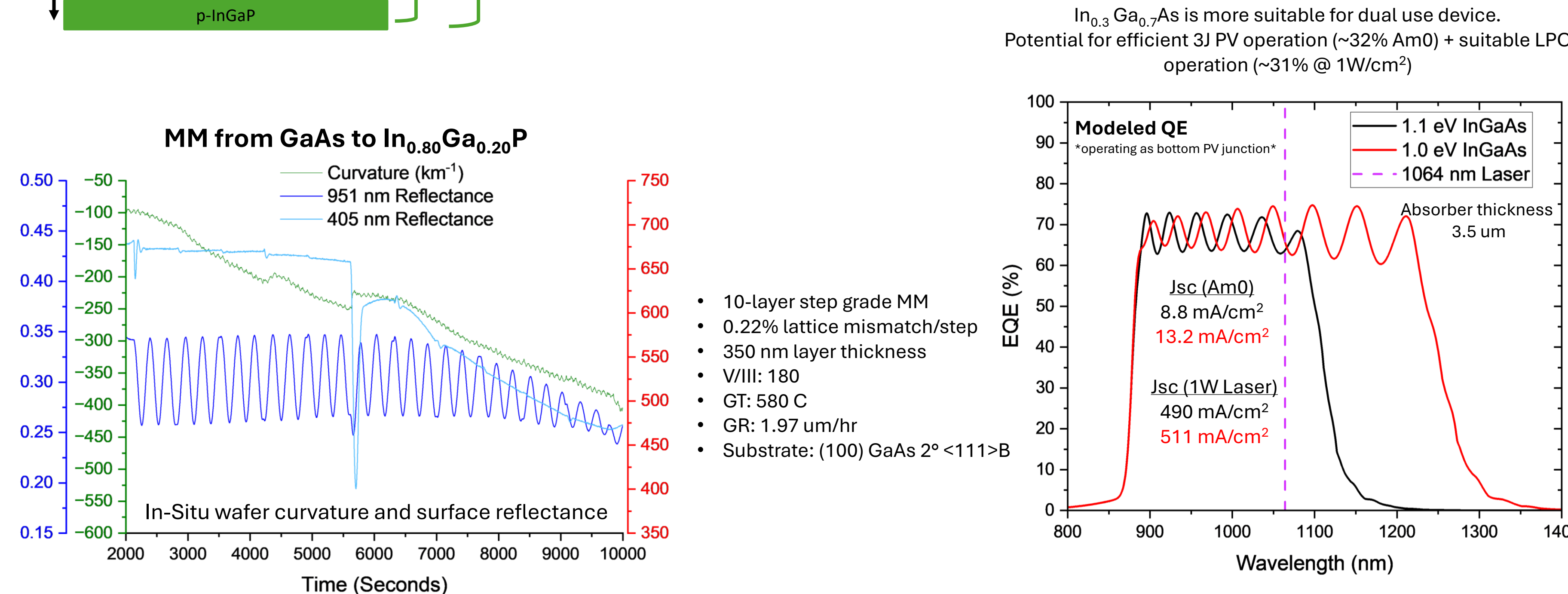
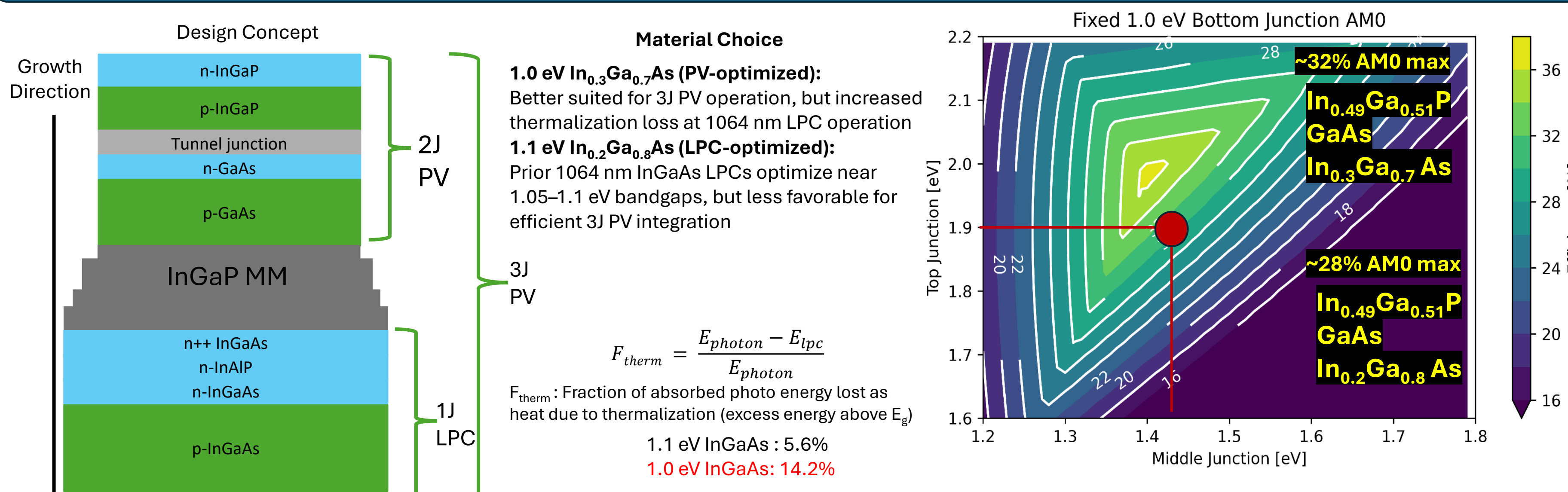
This work focuses on Level III: enabling dual-use device architectures that convert incident laser power into electrical energy or data while coexisting with momentum transfer.

Dual Use Devices

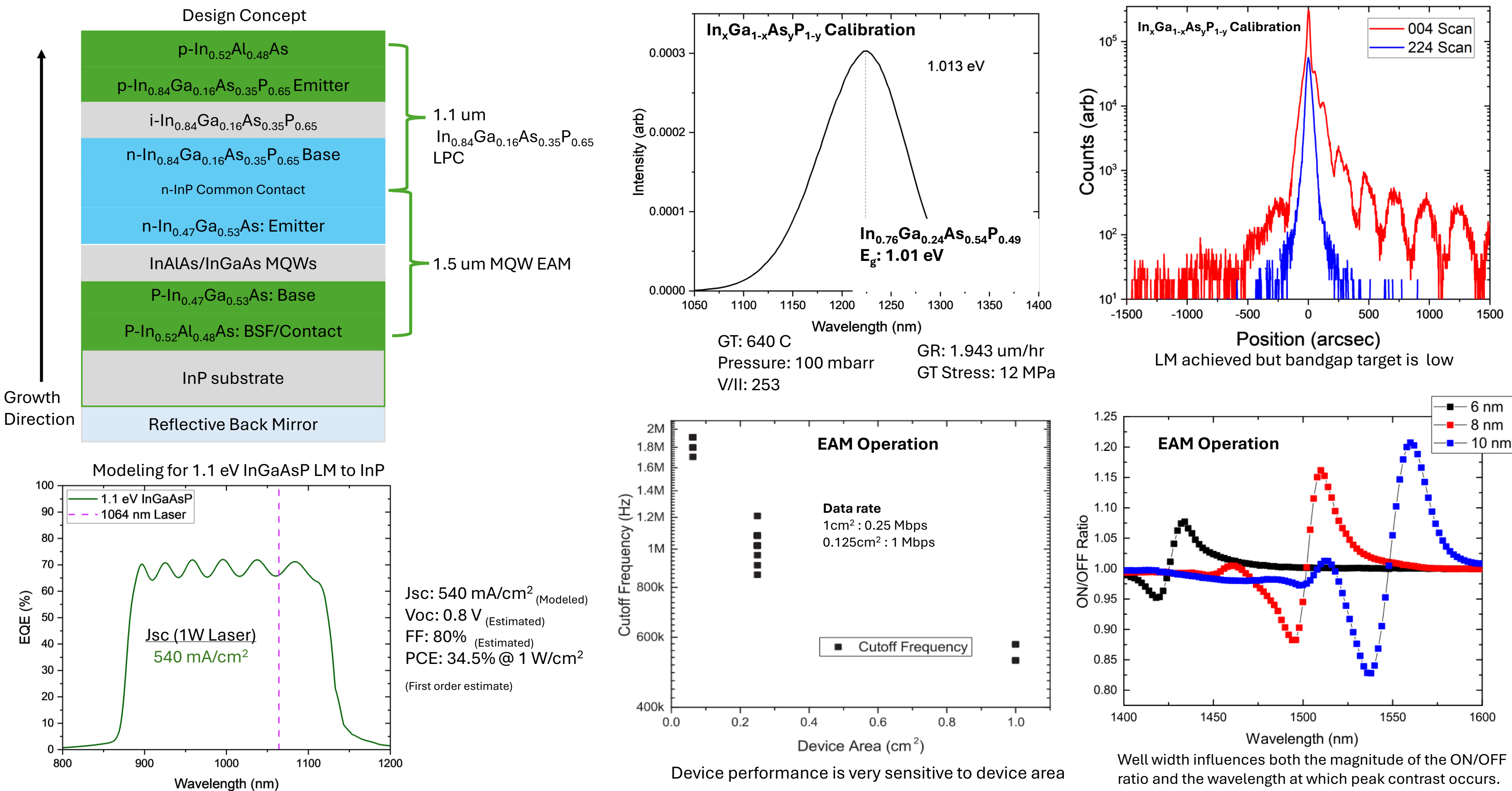
Two dual use architectures are under investigation



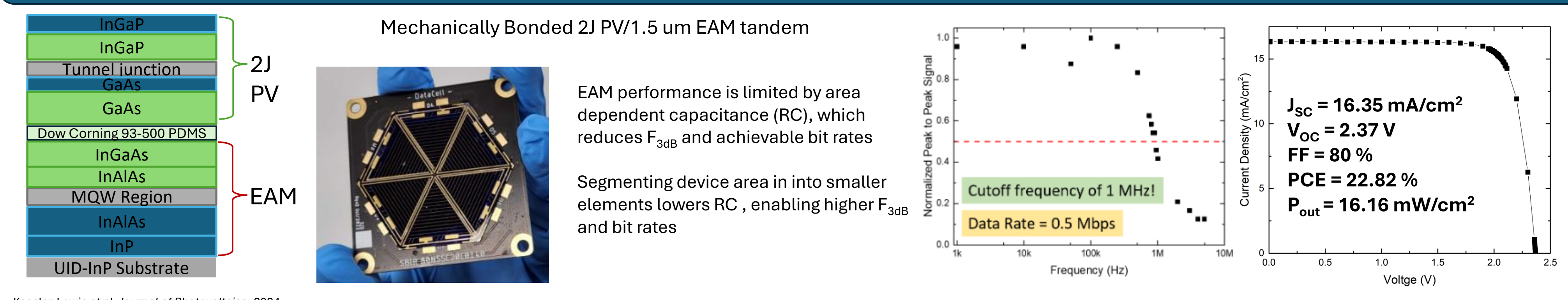
PV + LPC



EAM + LPC



Demonstration of PV+ EAM Hybrid Device



Acknowledgments