Arinna, Inc.

Power-Dense Flexible Solar Panels for High-Value Markets

Sector	Partners	Ready! Set! Go! Contest Goal	Long Term Goal
Photovoltaics (Solar)	FOM Technologies and Washington Clean Energy Test Bed (WCET)	Derisk the breakthrough technology and develop a prototype for mass production	GW scale deployment in numerous sectors → Up to 20,000 million of CO_2/year

Dr. Koosha Nassiri Nazif

PhD – Stanford U.

Palo Alto, CA

Alex Shearer

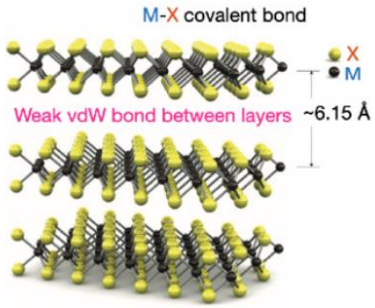
PhD – Stanford U.

Palo Alto, CA

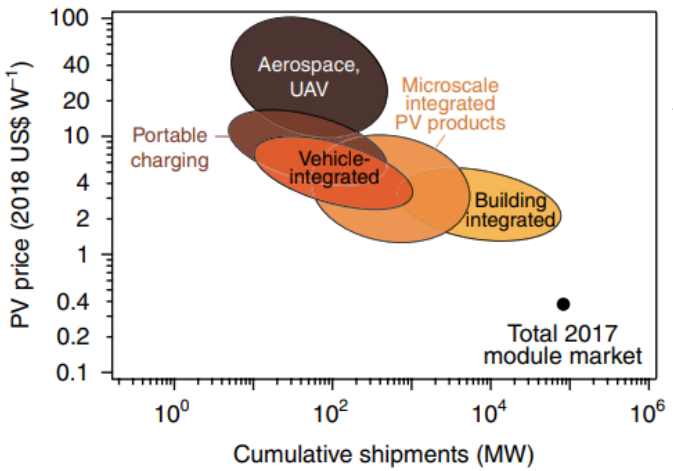
- Koosha is an expert in photovoltaics (7 years of research, 2 years of teaching), particularly transition metal dichalcogenide (TMD) photovoltaics, which was the focus of his PhD at Stanford
- Alex is an expert in semiconductor processing and materials synthesis and characterization (5 years of research). He focused on atomic layer deposition for nanoelectronics and photovoltaics
- Together, Alex and Koosha have spent 3 years evaluating the efficiency limits, scalability, and commercial potential of TMD-PV

Technical Innovation and Value Proposition

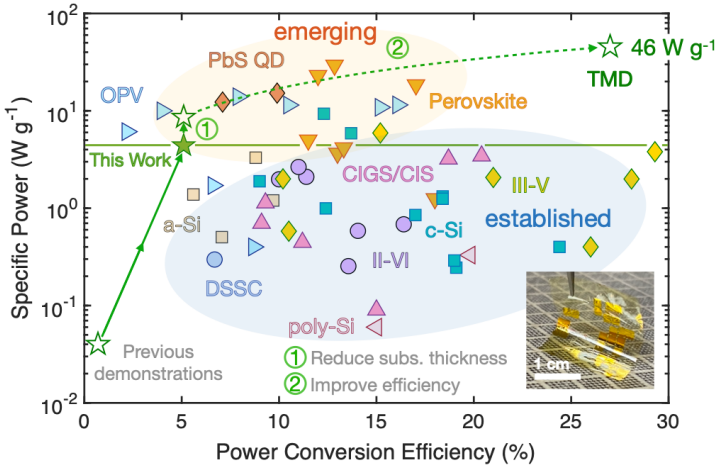
- **2D transition metal dichalcogenides (TMDs)** as solar energy harvesters: ultra high absorption coefficients, ideal band gaps, and self-passivated interfaces → the *ultimate thin film solar cell*
- **Ultra high specific power**: *10x higher specific power* (power per weight) than incumbent solar technologies, needed for high-specific-power photovoltaics markets such as aerospace, electric vehicles, IoT, and building integrated PV → *>$140B in size*, also leading to *~30% reduction in annual GHG emissions*
- **Low cost**: Technoeconomic analysis shows TMD PV costs as low as Si and CdTe, currently the cheapest PV technologies → *0.06-0.37 $/W*
- **Flexible**: TMDs have a layered structure and TMD-PV can be ultra thin (<100 nm) → high flexibility (<4 mm radius of curvature), *excellent form factor*
- **Ready to scale**: 12 years of development in semiconductor industry (Intel, TSMC, etc.) for next generation transistor tech in 2028 has prepared TMDs for mass production



High-specific power markets in 2027



PV Performance



R&D Plan

Create an integrated TMD-PV design using exclusively scalable synthesis techniques to validate the potential of TMD-PV for our first customers

Achieve >12% efficiency and >20 W/g specific power (enables pilot testing with customers)