



Ergonomic, Safe, No-Tool Solar Installation System

Key idea:

- Lightweight, low-cost residential turnkey PV system that simplifies install and enables DIY Solar.
"R-SPRINT™": Residential Solar Panel Racking INTEGRATED
- Take holistic system level development approach to overcome safety and complexity issues in residential PV installation:
 - Central carrying handle for PV module allows single hand under arm carry on sloped roof
 - High efficiency (TOPCon or HJT) module with nonconductive frame and integrated microinverter option requires no grounding on roof
 - Submount structures on roof tailored to module
 - Module-integrated attachment hooks → attach module to roof submount without tools, single person installation
 - 35% lighter system → installation on older roofs that otherwise would be rendered not solar compatible

LITESPEED ENERGY, INC. (LSE)
323 Alden Lane, Livermore, CA 94550

- Proposer: LITESPEED ENERGY (lead company)
- PI: Alexio Lira

Project Impact:

- Enable safer installation, with fewer accidents
- Democratize solar energy by making it accessible, affordable, and easy to install, especially for underserved communities like Native American tribes and rural areas.
- Bring Residential PV to a much broader market, especially low-income by providing low cost and viable option for DIY Solar

Project Goals:

- Develop, demonstrate and characterize POC for integrated system
- For Set! Demo day: demonstrate POC of tool-free PV module mounting fixtures, use existing module frame
- For Go! Demo day: demonstrate subscale POC of optimized PV module & frame with integrated residential rooftop mounting fixtures
- After: Develop full scale prototype of integrated R-SPRINT system

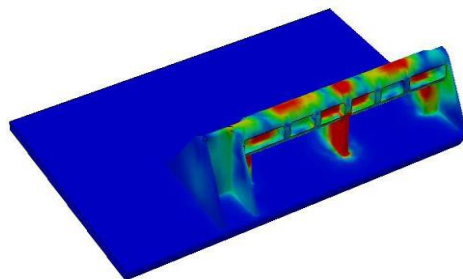
Hooks integrated in PV module



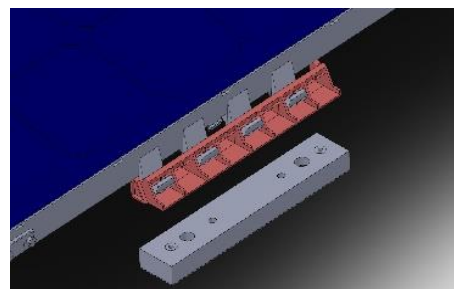
Carrying handle on backside of PV module



Roof attachment load modeling (FEA)



Attachment: Mount without tools



Preinstalled microinverter, hinged

