

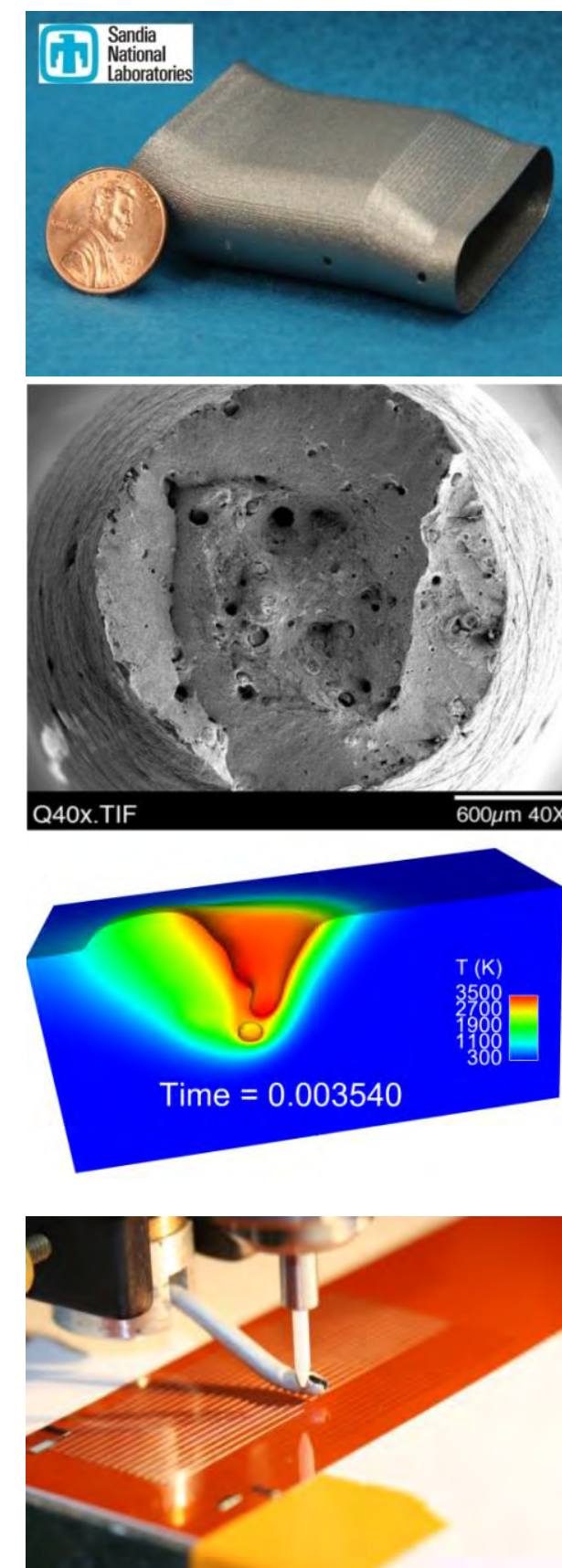
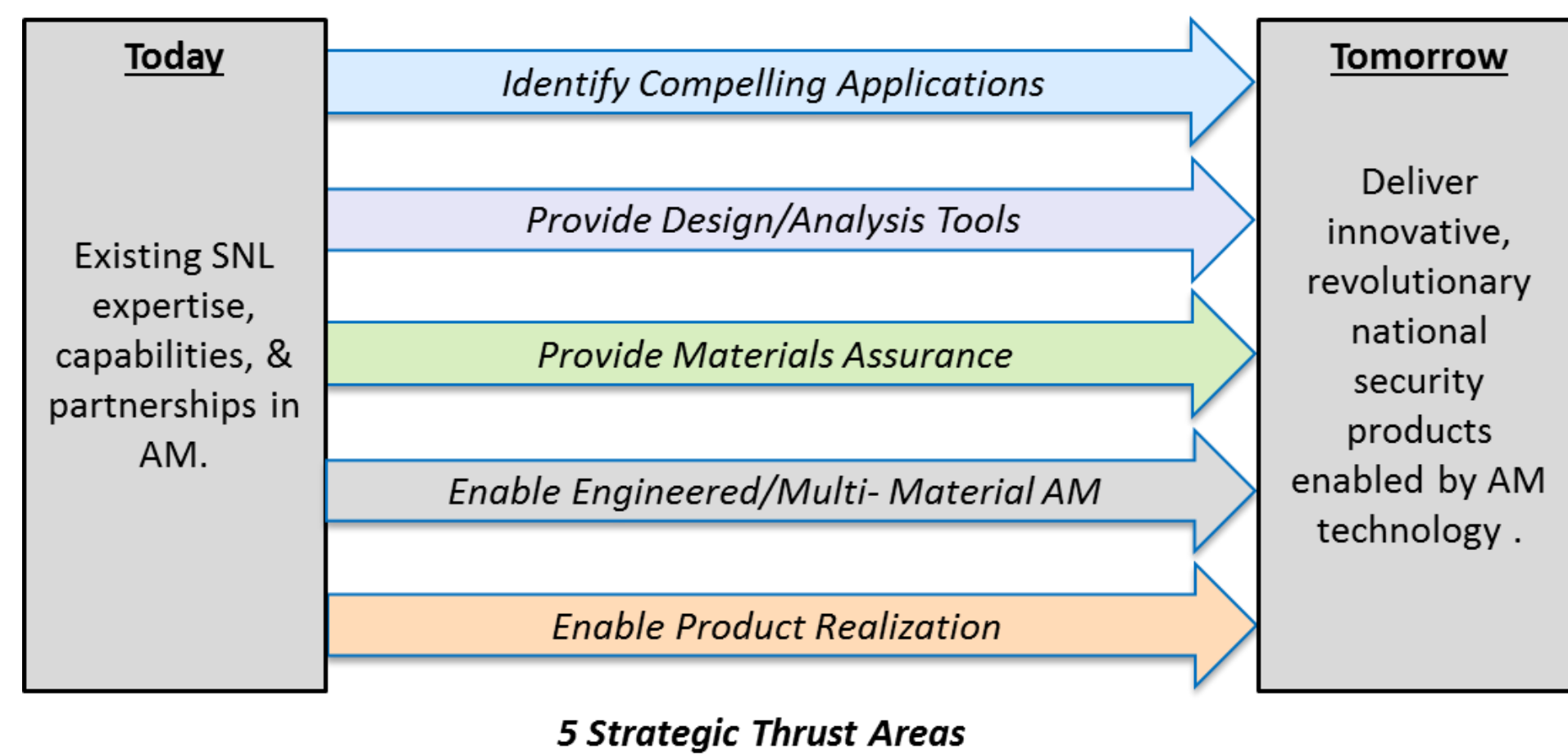
Multi-Scale Additive Manufacturing at the Advanced Materials Laboratory



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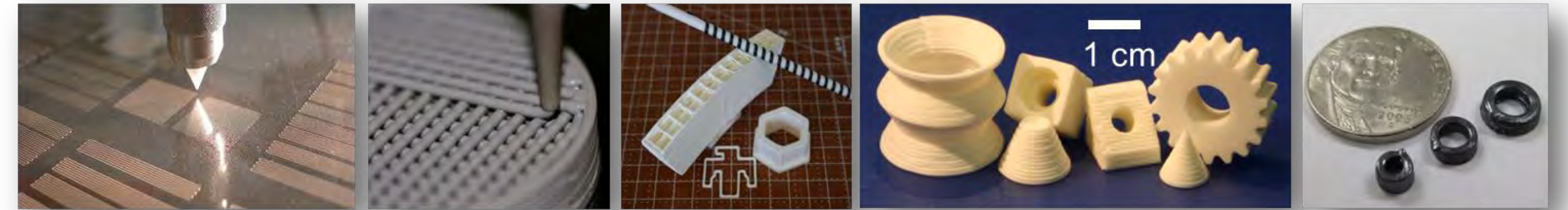
Sandia's AM Strategy

Vision: We will deliver innovative national security products – impossible to create with traditional technologies – by exploiting the revolutionary potential of Additive Manufacturing.

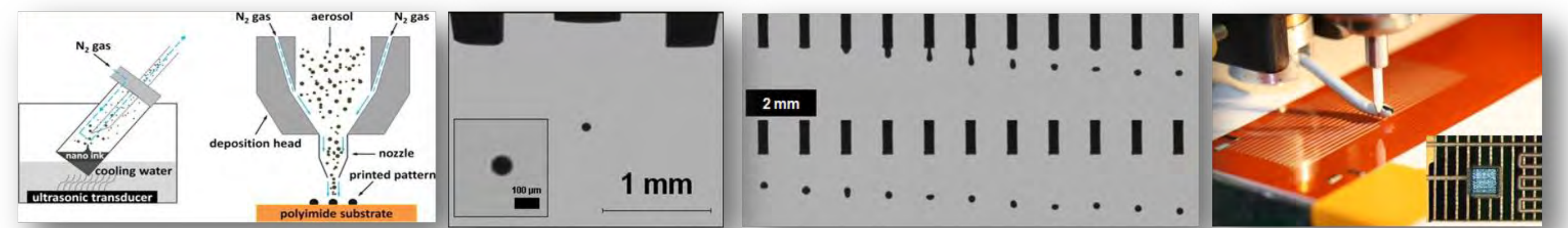


Direct write technologies enable access to materials not supported by conventional printing processes

Direct Write by Extrusion Casting

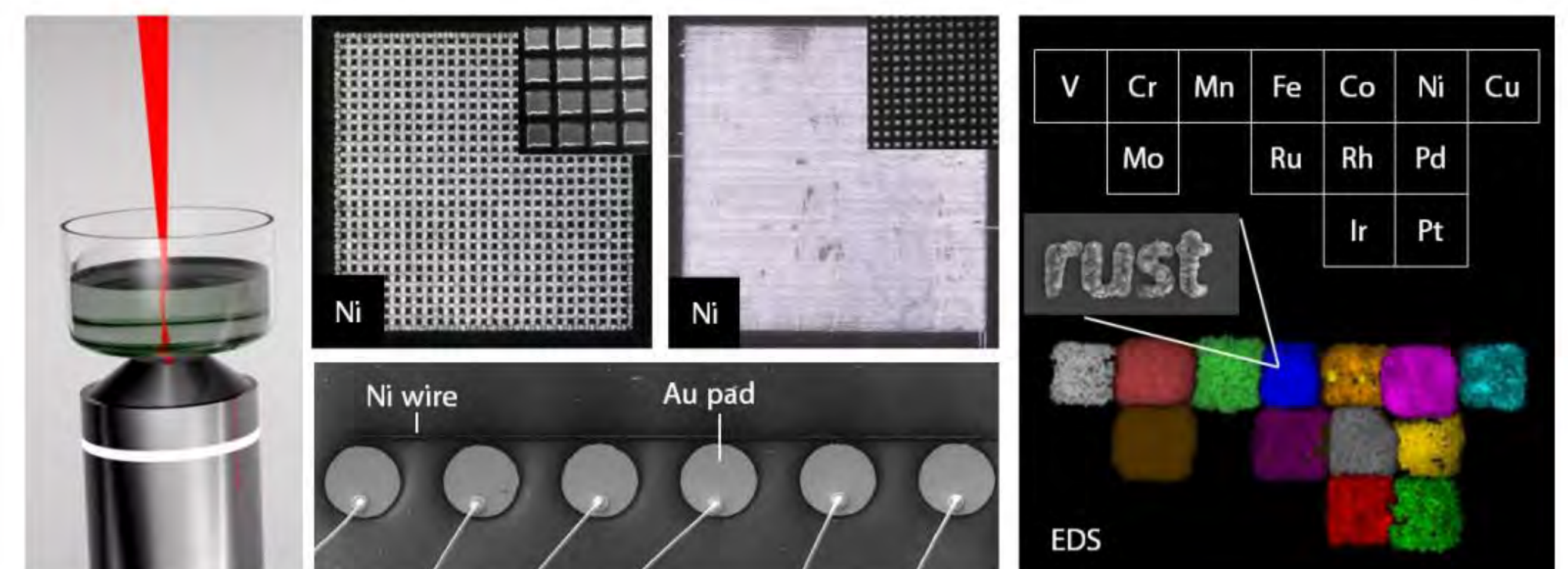


Direct Write by Aerosol & Ink Jet Deposition



Multiphoton Lithography and Laser Direct Write for Ultra-Fine, Functional Materials

LDW of Metals and Oxides in Solution



ACS Applied Materials & Interfaces 8.33 (2016): 21134-21139.

Additive manufacturing technologies support rapid component realization



Our R&D Scale Roll to Roll Manufacturing Provides a Critical Bridge from Materials Design/Prototyping to Scalable Manufacturing

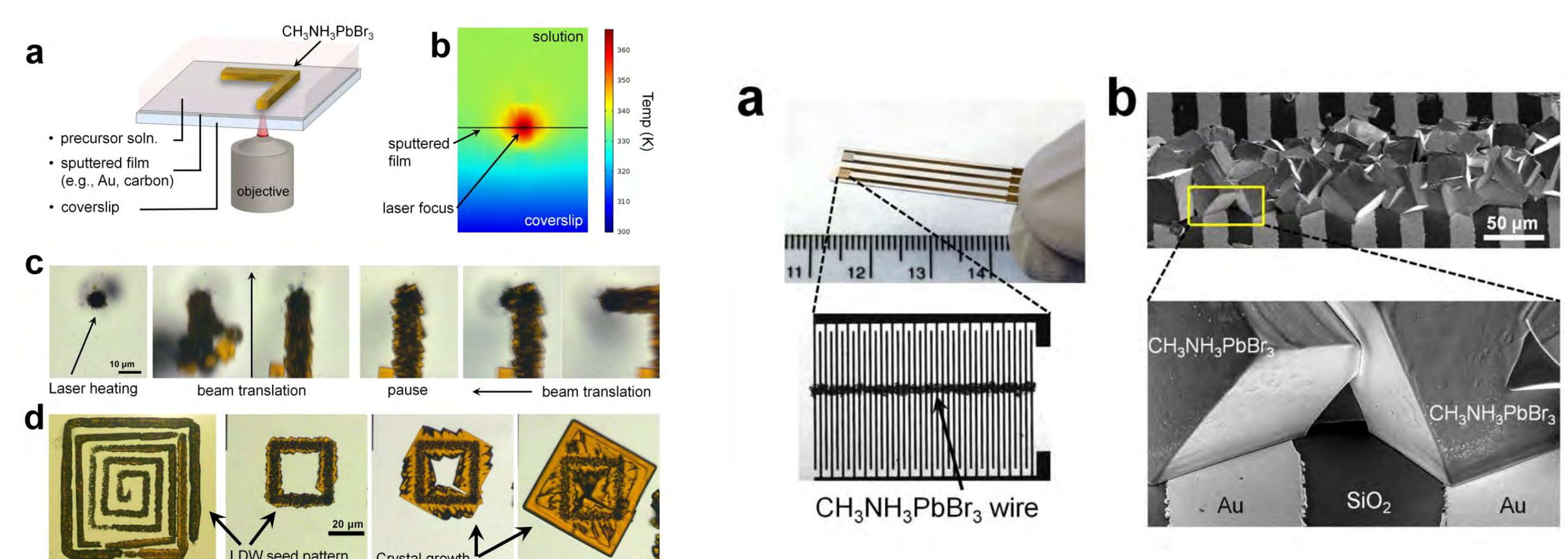
GT+W SuperProofer

- Gravure, gravure offset, flexographic printing
- Low fluid consumption (1.5 ml)
- High printing speed (5 m/s)
- **Multilayer alignment (<10 μm)**
- Printing hard/flexible substrates
- All parameters reproducibly adjustable
- Highest end, research grade instrument currently available



Sandia is a multi-mission laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States DOE's NNSA under contract DE-AC04-94AL85000.

LDW of Lead Halide Perovskites



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Multiphoton Lithography

