

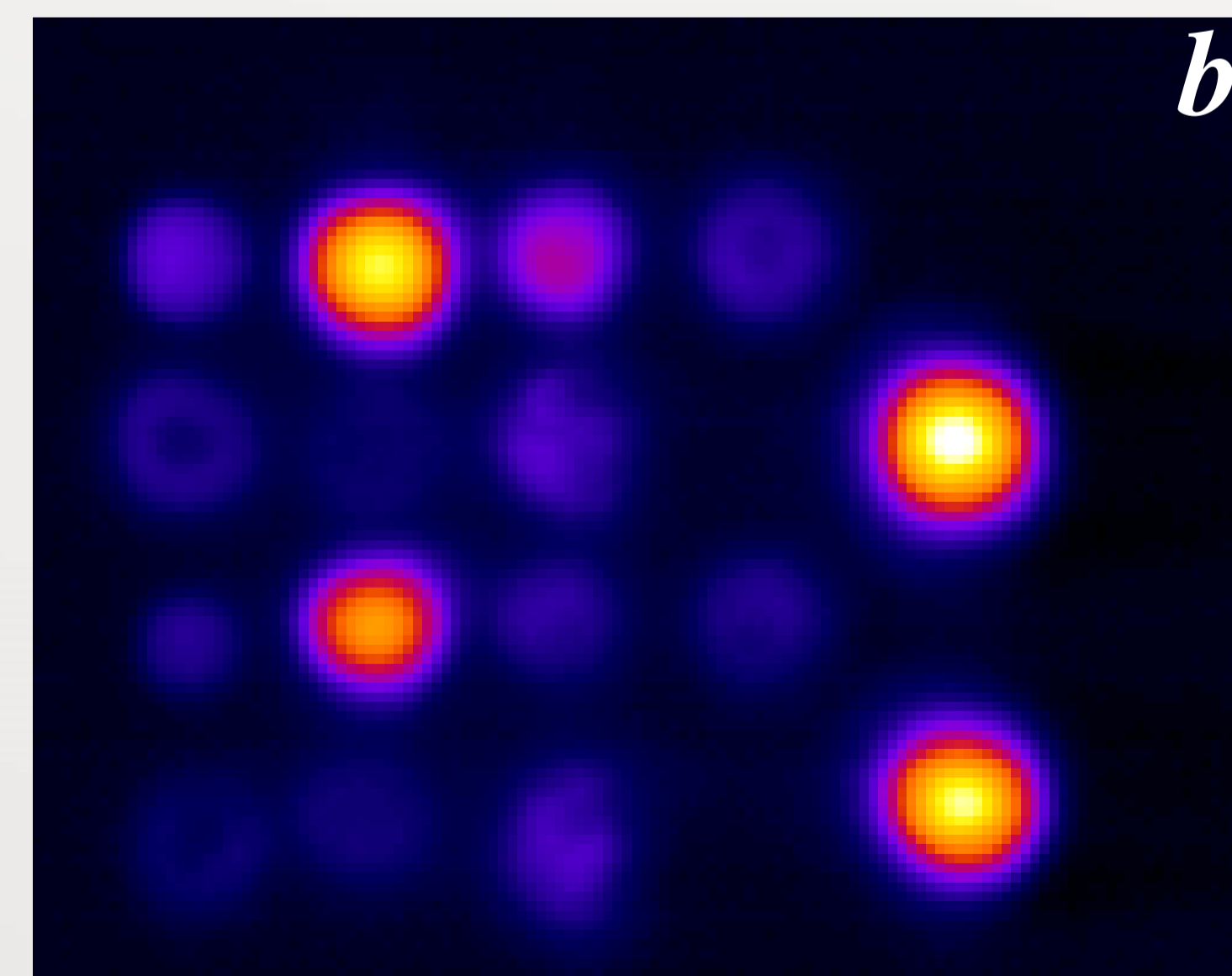
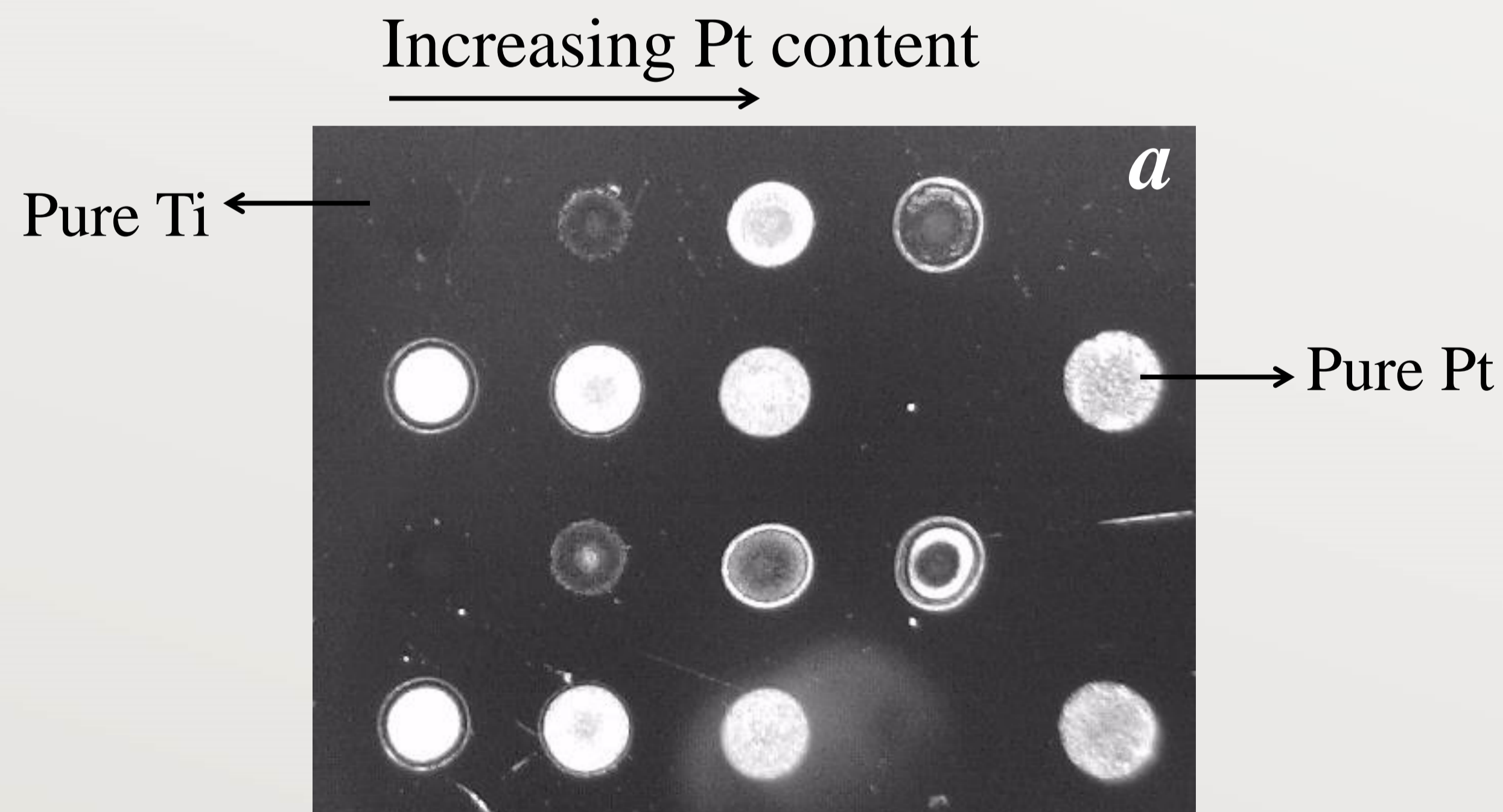
A Combinatorial Approach to Finding Efficient Photoelectrode-Catalyst Couples for Water Splitting

Motivation

- Hydrogen as clean energy source and chemical feedstock
- Current catalysts made from precious metals
- Catalysis depends on optimized strength of adsorption of surface intermediates – multicomponent catalysts can lead to optimal adsorption

Experimental design

- Fast automated piezoelectric dispensers enable us to make many materials quickly
- Ratio of component (up to four) in each material can be varied
- SECM used in testing these materials in a very fast manner



a) A Pt-Ti array on a p-Si substrate b) SECM result from the array (brightest spots correspond to best catalysts)