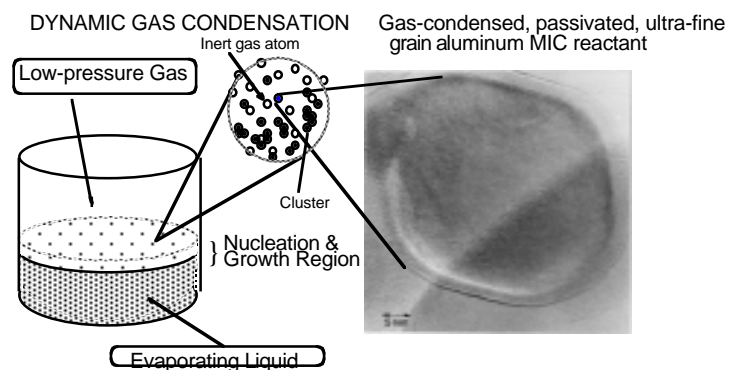
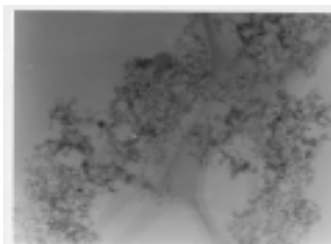




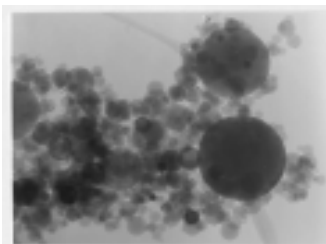
Dynamic Gas Condensation Is Used At LANL To Fabricate MIC Reactants



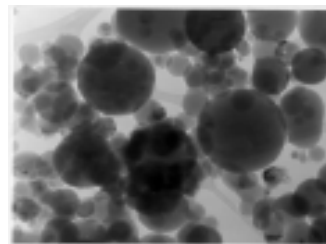
- Ultra fine particles (~20 nm)
- Uniform size distribution
- Size easily controlled
- Amenable to continuous production (currently ~25g/hr)
- Process self-purifies source metal



LANL Al Powder



Russian Al Powder
("ALEX")



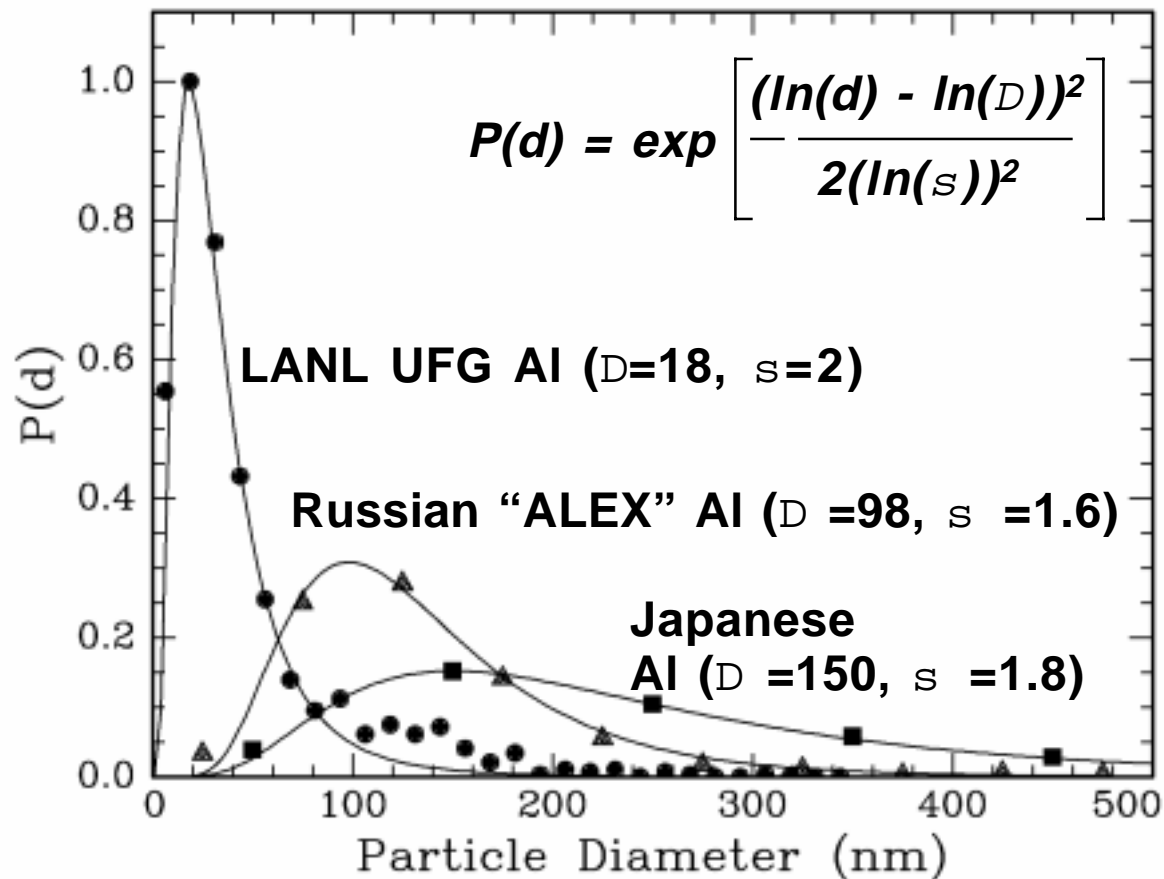
Japanese Al Powder

other fabrication techniques used

500 nm



LANL Al Powders Have A Smaller Mean Size And A Narrower Size Distribution Than Commercial Powders

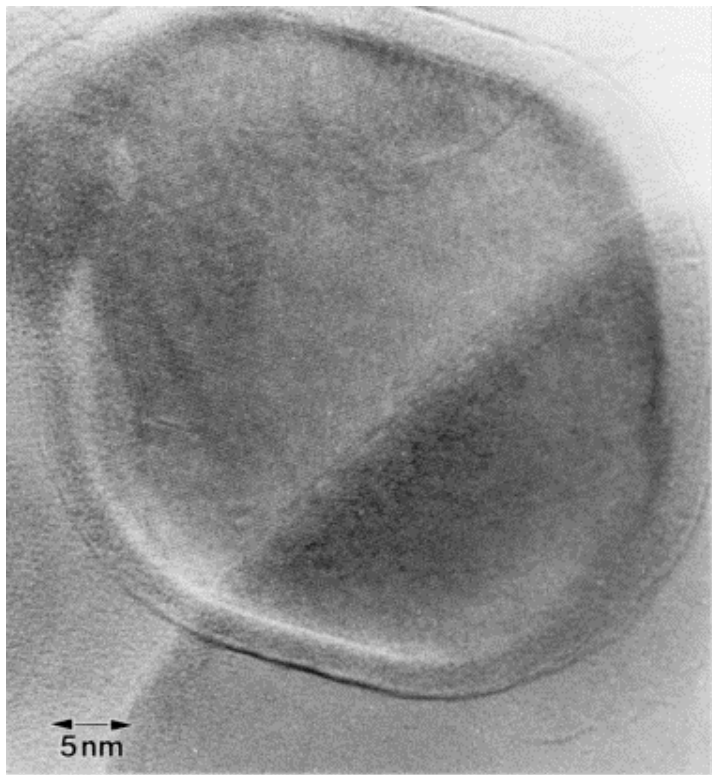


- log-normal distribution function fits measured data well
- D = peak position
- s fixes distribution width

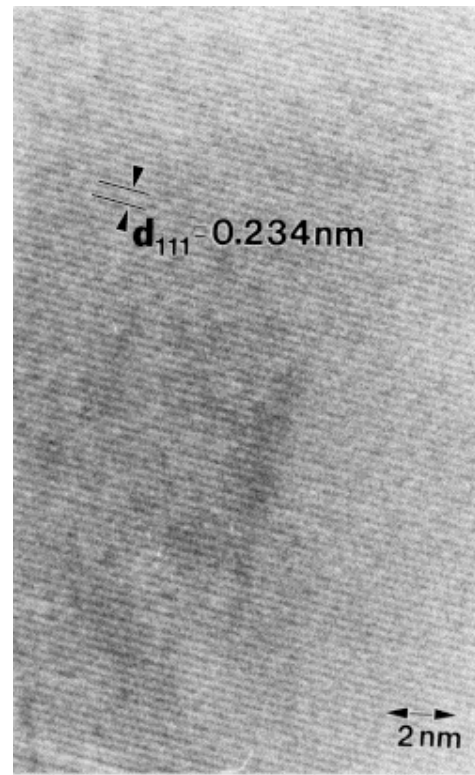


LANL UFG ALUMINUM PARTICLES ARE SINGLE CRYSTALS WITH NEGLIGIBLE STRUCTURAL DEFECT DENSITY

GAS-CONDENSED Al PARTICLE



Al(111) LATTICE FRINGES



- 1 interior aluminum is crystalline
- 1 no structural defects apparent
- 1 2.5 nm thick Al_2O_3 passivation layer



SEM of LANL UFG ALUMINUM PARTICLES

