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# Conversion of oxy-fluoride based YBCO coated conductors

**Massachusetts Institute of Technology**

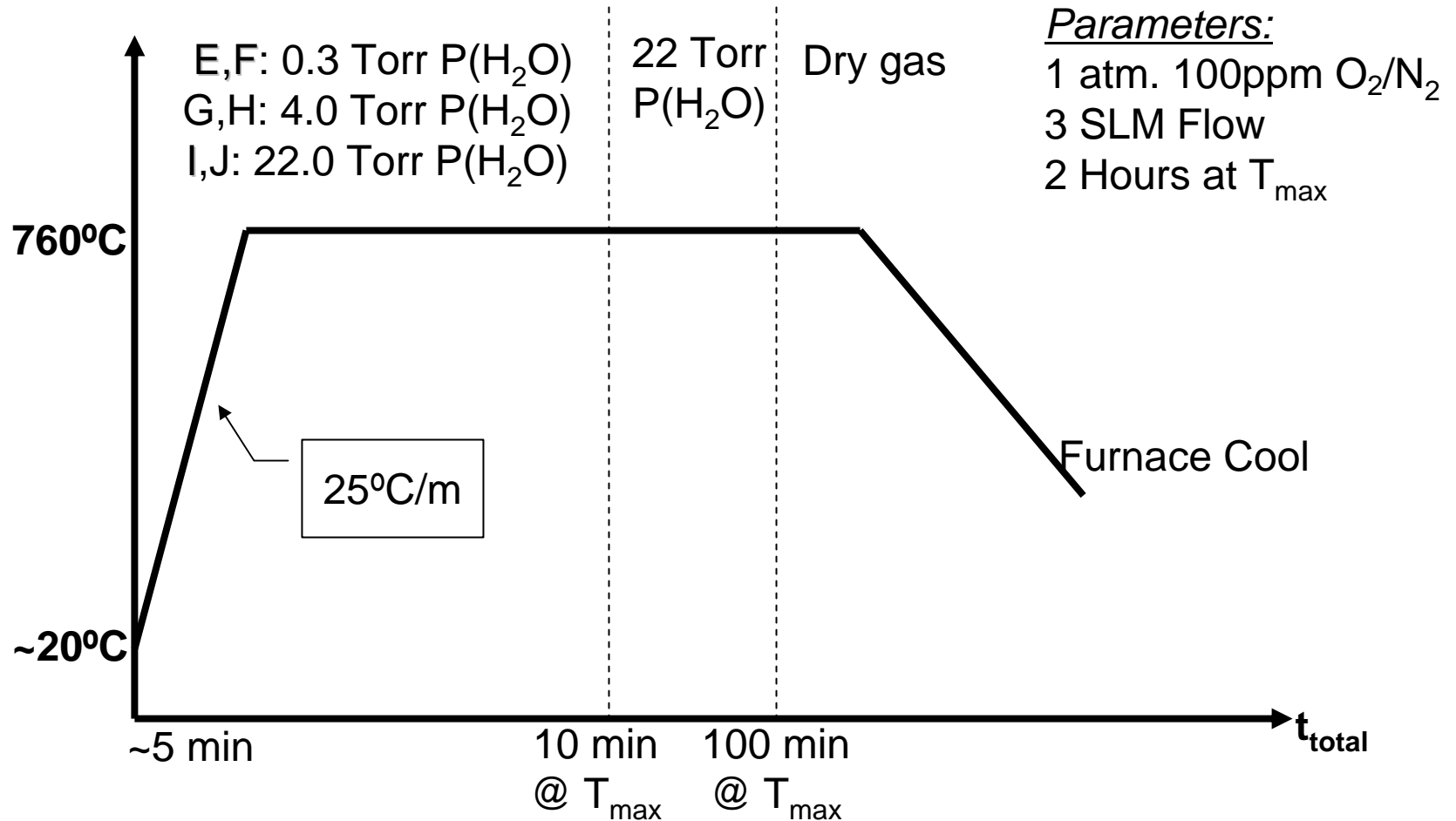
M. J. Cima, M. Yoshizumi, D. Wesolowski

**Brookhaven National Laboratory**

M. Suenaga, V. Solovyov, H. Wiesmann, D. O. Welch

# Experimental: F/Ba Trajectory

- Heat treatments to explore various F/Ba trajectories

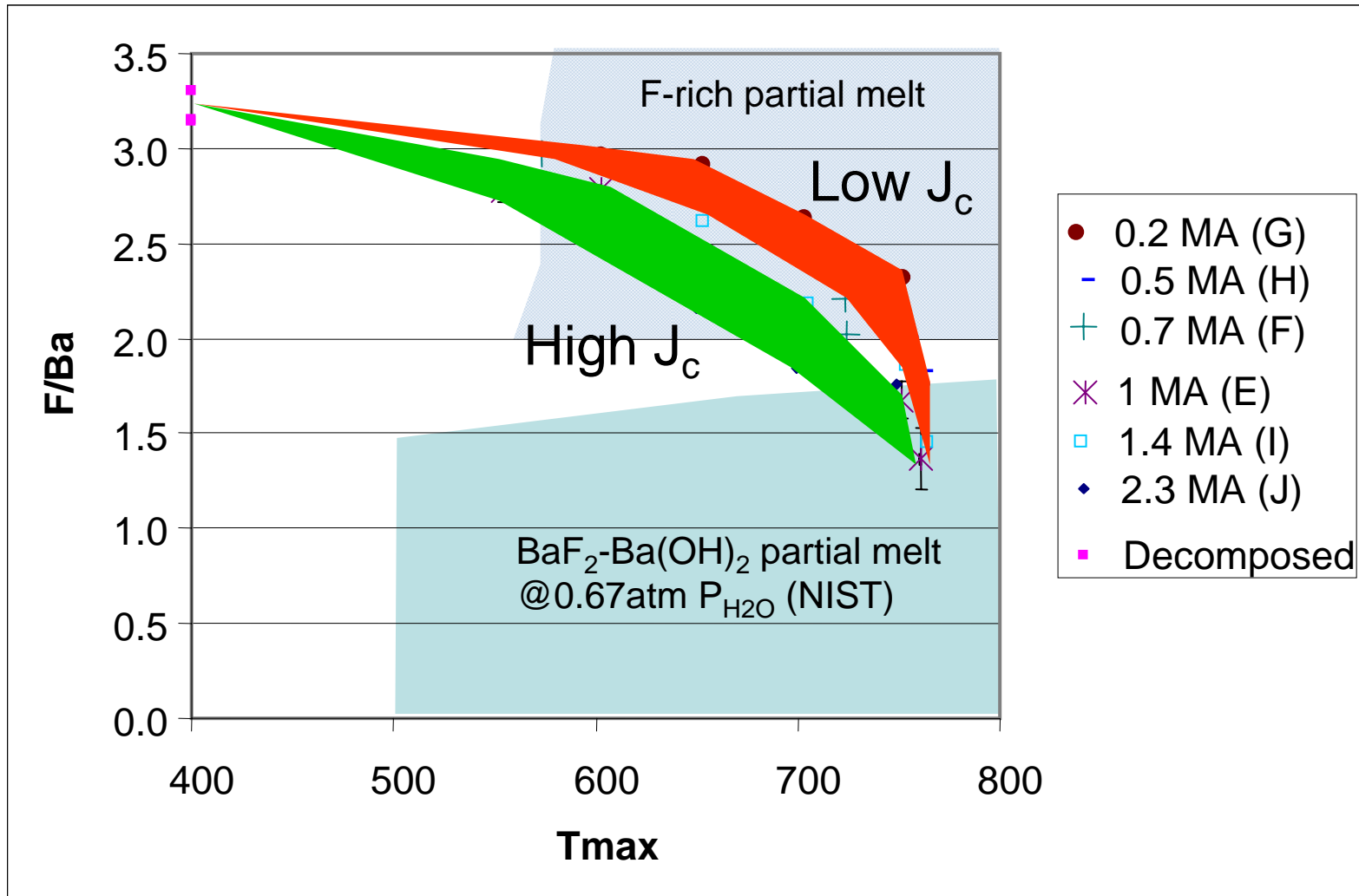


# Trajectory vs. $J_c$ relationship

■  $T_{\max} = 760^\circ\text{C}$ ,  $25^\circ\text{C}/\text{min}$  ramp. 100ppm  $\text{O}_2/\text{N}_2$

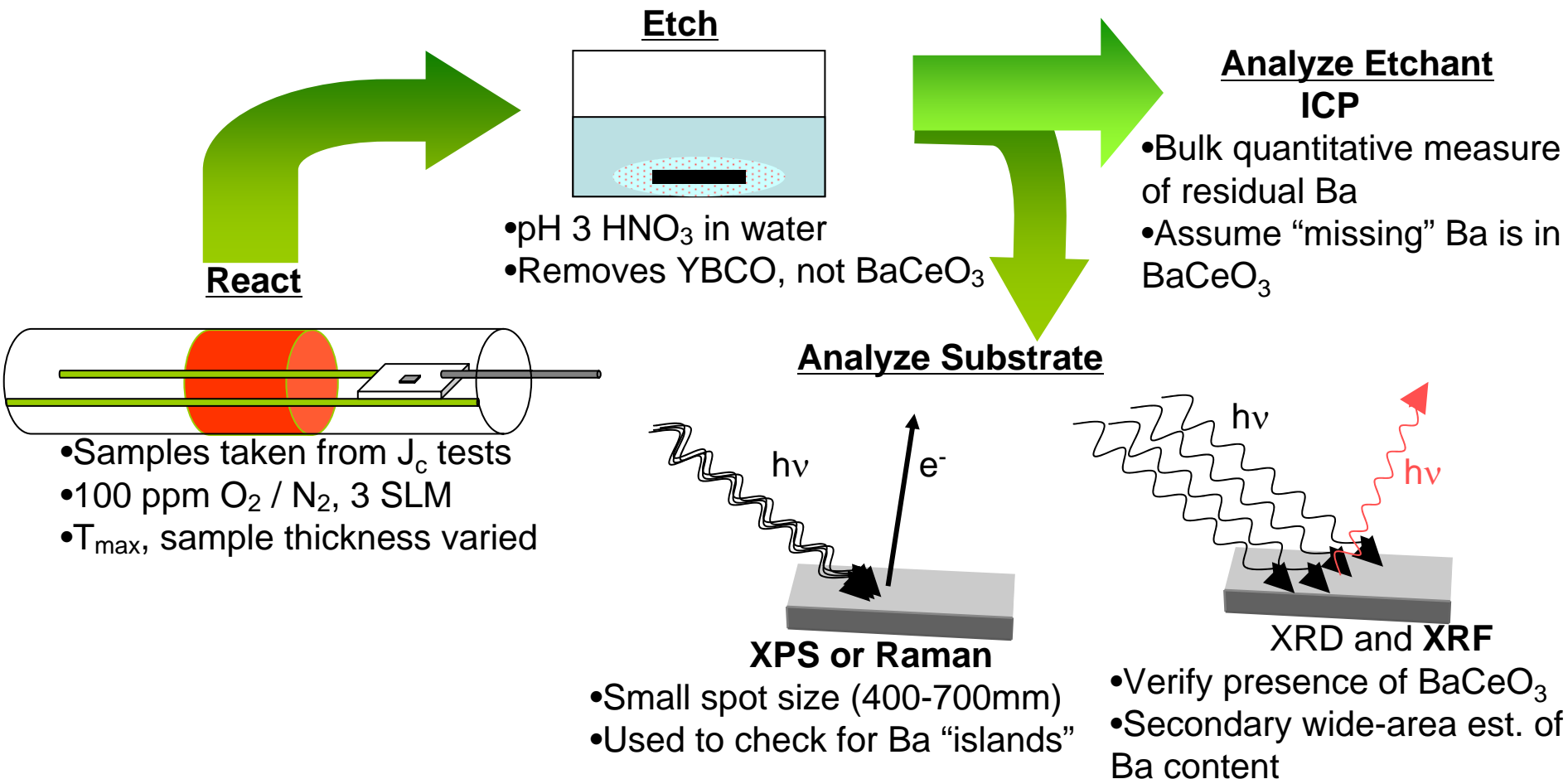
	d (nm)	P( $\text{H}_2\text{O}$ ) (Torr)	Max. $J_c$ (MA/cm <sup>2</sup> )	Avg. $J_c$ (MA/cm <sup>2</sup> )	n
(G)	750	0.1	0.79	0.24	6
(H)	370	0.4	1.44	0.53	4
(E)	740	5.1	1.47	1.03	3
(F)	340	5.3	1.97	0.66	6
(I)	830	22.2	1.46	1.39	3
(J)	360	22.2	3.15	2.35	6

# F/Ba Trajectory- $J_c$ relationship



# Experimental: BaCeO<sub>3</sub> Quantification

- Selectively etch YBCO, analyze etchant and substrate



# BaCeO<sub>3</sub> Quantification

- Nitrate-based MOD-derived CeO<sub>2</sub> cap layers used
- Etches identified
  - ▶ NH<sub>4</sub>OH / H<sub>2</sub>O<sub>2</sub> for Ag removal
    - Slight YBCO deterioration (Cu loss)
  - ▶ pH 3.25 HNO<sub>3</sub> for selective YBCO removal
  - ▶ Etchants from steps 1 and 2 are combined before ICP
- XRD indicates only CeO<sub>2</sub>, BaCeO<sub>3</sub> on stripped substrate

