ANL/FNAL Cavity Processing Status

Genfa Wu

for ANL/Fermilab team

Team effort

- EP/Processing team: M. Kelly (ANL), S. Gerbick (ANL), M. Ketzy (ANL), D Bice, D. Olis, G. Wu, A. Rowe, B. Smith, T. Arkan, …
- RF/cryo team: J. Ozelis, G. Wu, M. Carter, D. Massengil, …
- A0 Vacuum team: A. Rowe, W. Murayi, B. Tennis, R. Montiel, M. Rauchmiller, …
- Hardware: C. Ginsburg, P. Pfund, N. Dhanaraj, M. Steinke, B. Smith, …
- Inspection: M. Ge, D. Sergatskov, G. Wu, R. Schuessler
- Cornell: Z. Conway, H. Padamsee

  and

  ANL FNAL safety personnel: T. Mullen, R. Ruthe, …

  Strong Management support from FNAL and ANL.

ANL/FNAL facility

Cavity sequence

Camera inspection

Ultrasonic degrease with soap

EP

Ultrasonic degrease with soap

HPR

Baking 120 C

RF cold test

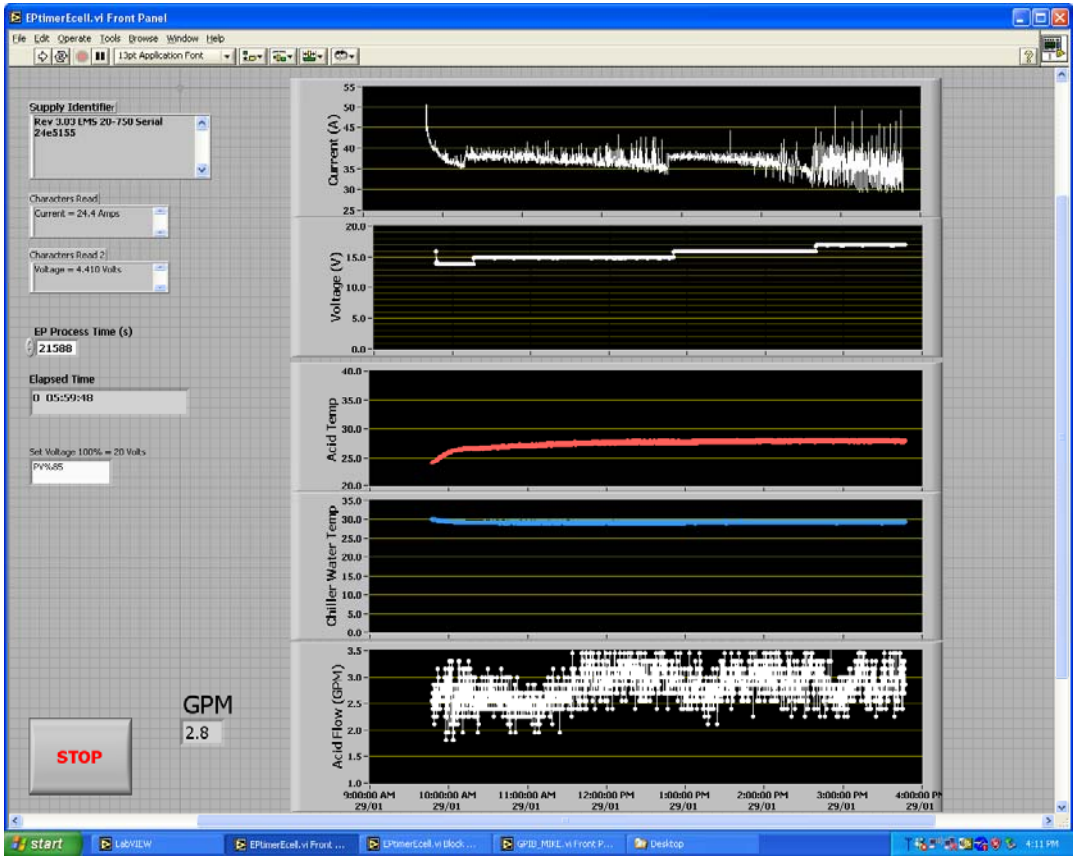
Follow up Camera inspection

For 9-cell, there is 600 C baking and light EP afterwards

ANL/FNAL joint facility

Courtesy of M. Kelly

ANL/FNAL facility



A typical EP process with constant average current

ANL/FNAL joint facility

Courtesy of M. Kelly

ANL/FNAL facility

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Courtesy of D. Olis

ANL/FNAL facility

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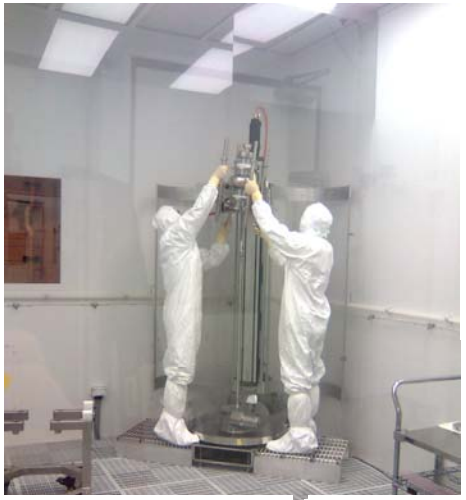
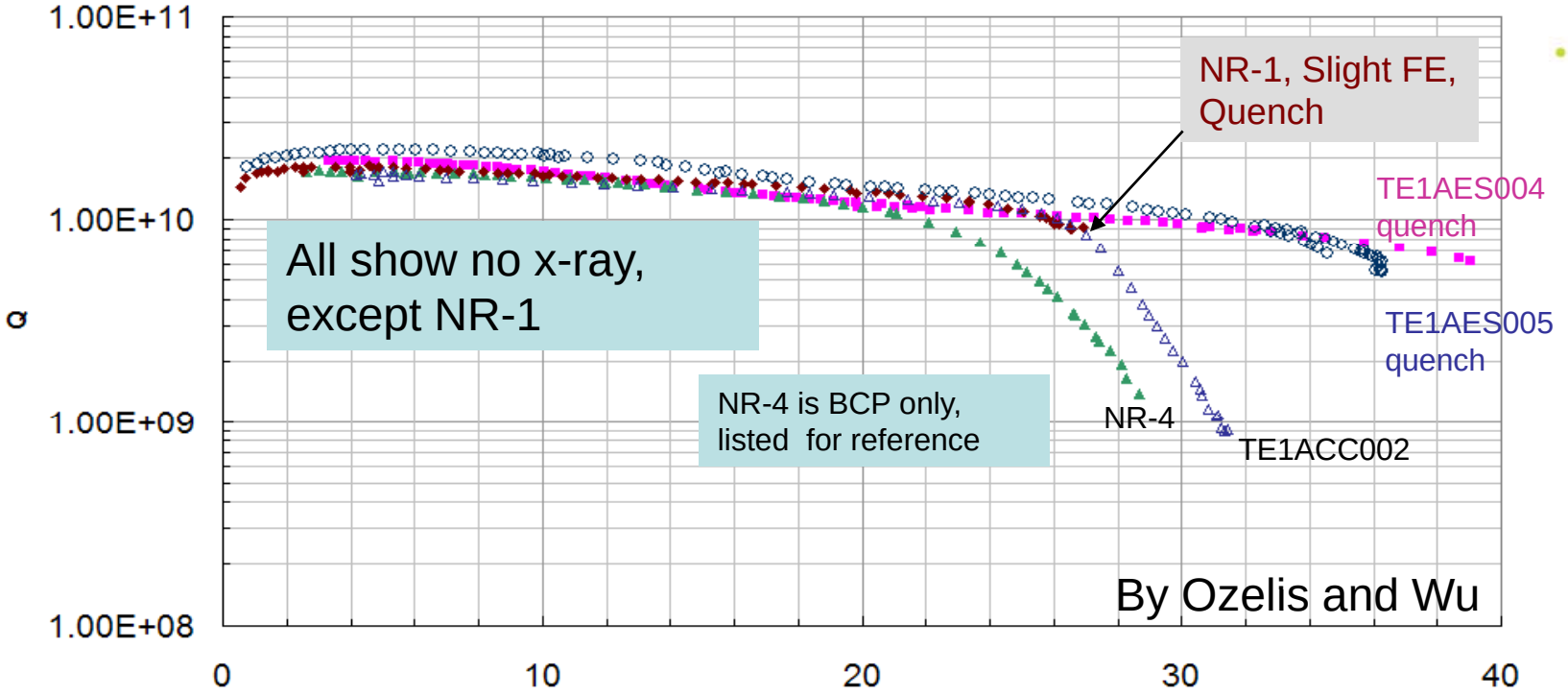
Fermilab IB1 Vertical Test System

ANL/FNAL single cell rapid prototyping



Two cell rapid RF test was made reality by effort of Ozelis, Ginsburg, Carter and Wu

EP single cell cavity performance



EP single cell at ANL/FNAL facility

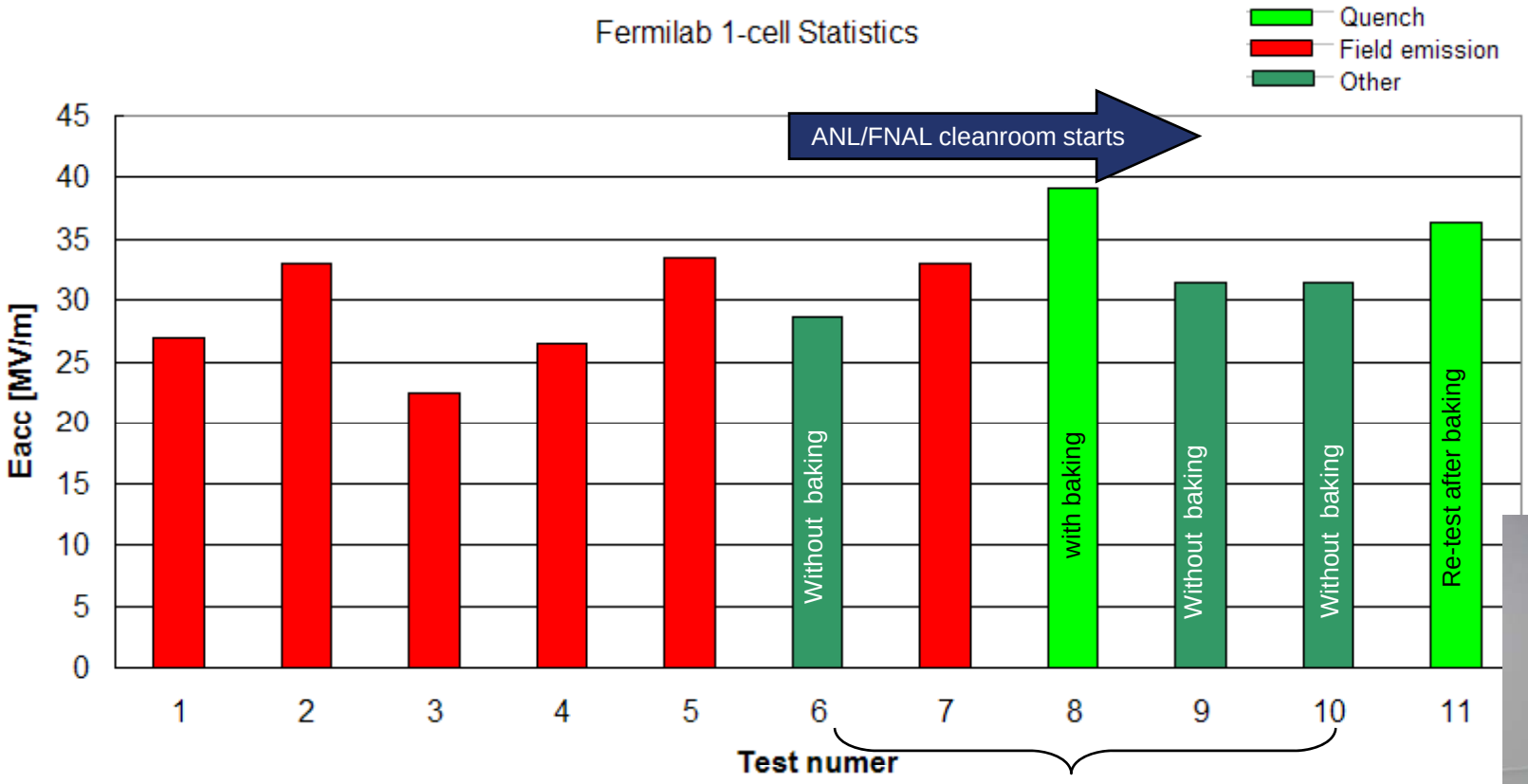
	BCP	EP	Ethanol	120 C baking	
NR-1	150	93			
TE1AES004	107	65		Yes	
TE1AES005	104	100	Yes	Yes	
TE1ACC002		112	Yes on second		
TE1ACC001		99			← EP completed
TE1ACC003		119			← EP completed
TE1ACC004					← EP planning

Cavity performance and material

	BCP	EP	Ethanol	120 C baking	Highest Eacc	Material
NR-1	150	93			28 MV/m	Wah Chang fine grain
TE1AES004	107	65		Yes	39.2 MV/m	Same material as first 4 9-cell
TE1AES005	104	100	Yes	Yes	36.3 MV/m	Same material as first 4 9-cell
TE1ACC002		112	Yes on second		33 MV/m	Wah Chang long grain
TE1ACC001		99				Wah Chang long grain
TE1ACC003		119				Wah Chang long grain
TE1ACC004						Wah Chang long grain

Work in progress !

Fermi Argonne cavity experience



3 Recent consecutive RF tests show no x-ray and 4/5 single cell cavity cycles show no x-ray at ANL/FNAL joint facility

9-cell HPR started on 3/13/2009

Planned Processing/RF tests

- Two RF tests for post-baking EP cavities
- Two newly EP single cell cavities
- ABLE EP cavity
- Laser treated cavity (with Cornell Support)

1-cell Before May

- 2 9-cell HPR/RF test (A6)
- 1 9-cell RF test (A13, JLAB result verification)
- 1 9-cell light EP (tentative)
- 1 9-cell bulk EP (tentative)

9-cell Before June