

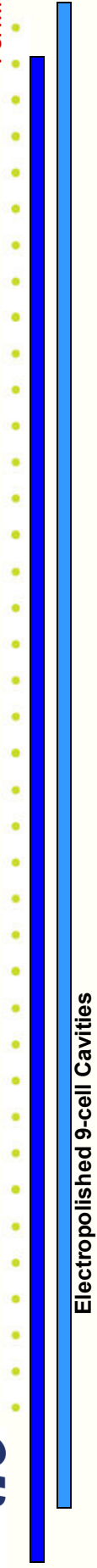
Global Cavity Database Report

C.M. Ginsburg (Fermilab)

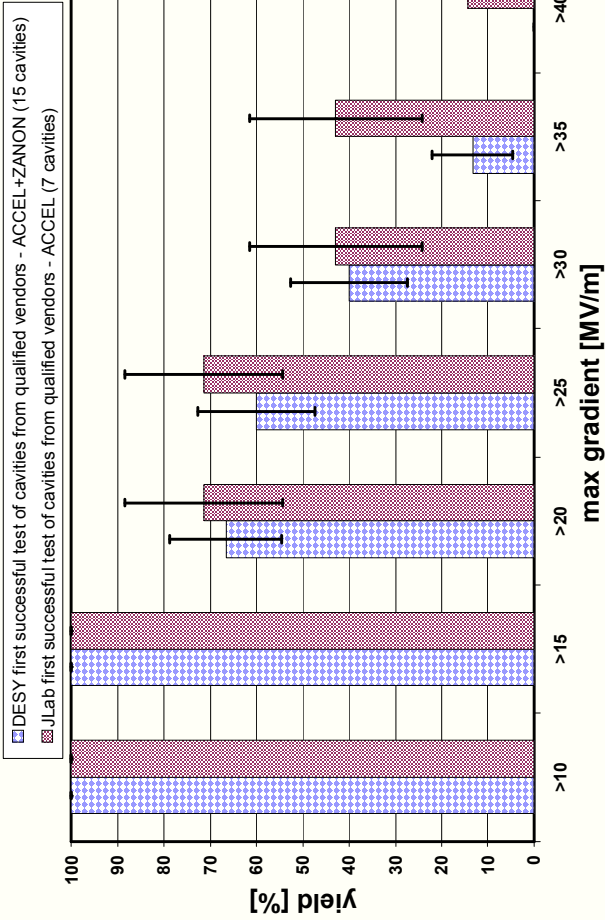
On behalf of the database group (as part of S0 effort):
Rongli Geng (S0 leader, JLab), Sebastian Aderhold (DESY),
Kirk Yamamoto (KEK), Zack Conway (Cornell)

September 14, 2009

- Database version 7/7/2009
- Cuts
 - Cavity from qualified vendor: ACCEL or ZANON
 - Fine-grain cavity
 - Use the first successful (= no system problem) test
 - Standard EP processing: no BCP, no experimental processes
 - Defined as JLab#1, DESY#2 (weld tank before test), DESY #4 (weld tank after test)
 - (Ignore test limitation)
- Include binomial errors

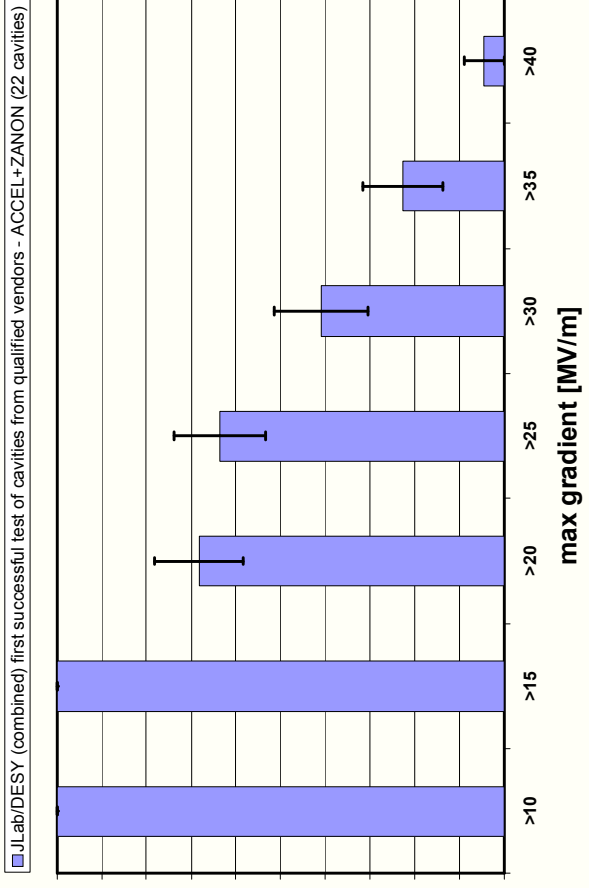


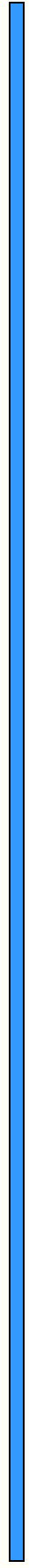
Electropolished 9-cell Cavities



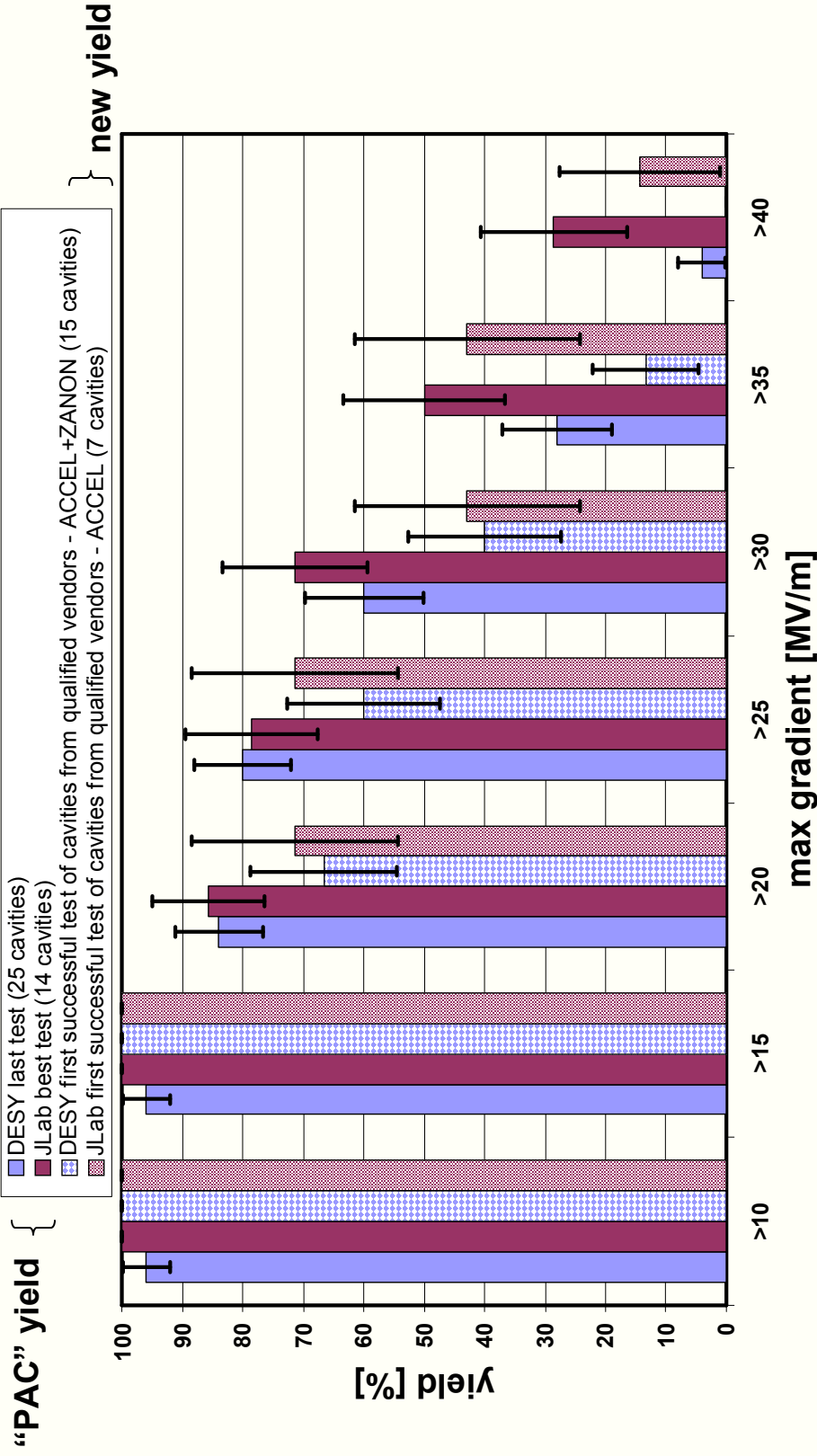
Since DESY and JLab yields are statistically consistent, can combine them to get a smaller error bar

Electropolished 9-cell cavities





Electropolished 9-cell Cavities



New yields from DESY & JLab are statistically consistent with each other
Old yields from DESY & JLab are also statistically consistent with each other

- Previous “PAC” production plot [25 (DESY) + 14(JLab)] included these data:
 - DESY: Production 4&6, EP, with or without He tank, “last test” as of March 2009
 - Production 4 [10 cavities] Z88, Z93, Z97, Z100, Z101, Z104, Z106, Z107, Z108, Z109
 - Production 6 [15 cavities] AC115, AC117, Z130, Z131, Z137; AC122, AC124, AC125, AC126, AC127, AC149, AC150, Z132, Z139, Z143
 - JLab: 14 cavities EP’d and tested at JLab (best test)
 - Accel/RI [8 cavities] : A6, A7, A8, TB9ACC011, TB9ACC012, TB9ACC013, TB9ACC014, TB9ACC015
 - Not ACCEL or Zanon [6 cavities]: AES001, AES002, AES003, AES004, Ichiro-5, JLab-2
- 7/7/2009 Excel spreadsheet contains data from all three regions, from the last few years
 - KEK [5 cavities]: [MHI005:MHI009]
 - Requiring already-qualified vendor eliminates all
 - JLab, Cornell, Fermilab [18 cavities]: [A5: A9], [TB9ACC010:TB9ACC015], [AES1:AES004], [TB9AES005:TB9AES006], JLAB-2
 - [Reduces to 7] Requiring already-qualified vendor [-7] and standard processing [-3] and one not proc/test yet [-1]: ACCEL6, ACCEL7, [TB9ACC011:TB9ACC015]
 - DESY [39 cavities]: [AC112:AC129], [Z130:Z145], [AC146:150] (Production batches 5, 6, & 7 are represented)
 - [Reduces to 15] Requiring EP [-13], a successful first test [-8], fine-grain [-3]: AC115, AC122, AC124, AC125, AC126, AC127, Z130, Z131, Z132, Z137, Z139, Z141, Z143, AC149, AC150
- We may be able to increase statistics by up to 10 more cavities without testing more cavities by requesting to include DESY production 4 in the database effort
 - This may also be the only hope of a sensible time-dependence plot in the near-term

- **Plots**
 - ✓ Improve the example/preliminary plot to include only production-style EP'd cavities and include error bars
 - Add more plots, as previously proposed, see next slide... This is probably most critical to happen before SRF2009 for best discussion
 - Add DESY Production 4? [I can do a preliminary version w/o spreadsheet update, though it would not be my preference...]
- **Spreadsheet**
 - Few entries to be completed and minor errors to be fixed (don't affect plots)
- **Database itself**
 - Develop with DESY colleagues the precise tools for database uploading
 - Add a limited number of new stored quantities

After SRF2009

- ✓ FALC meeting July 13, 2009
 - Provide an example plot of production yield (p.7), citing caveats (whatever they are at the time)
 - Using preliminary and incomplete data for past 2-3 years from the simple Excel spreadsheet format, no web interface
 - Provide the people list (p.2) , and the plan
- ✓ End July 2009: Determine whether DESY DB is viable option, and timescale for implementation
- ALCPG/GDE Sept. 28 - Oct. 2, 2009
 - Dataset is web-based (thanks to support by DESY)
 - Some well-checked, easily explainable, and near-final plots available for discussion such as
 - Production yield
 - ✓ Qualified vendors
 - All vendors → Propose change to “new” vendors to eliminate overlap
 - Process yield
 - Time evolution of some quantities
- End Nov. 2009: With colleagues’ input, finalize DB tool, web interface, standard plots, possibly with longer-term tool improvement plans