# FBK SiPM: Caltech-W13, #4
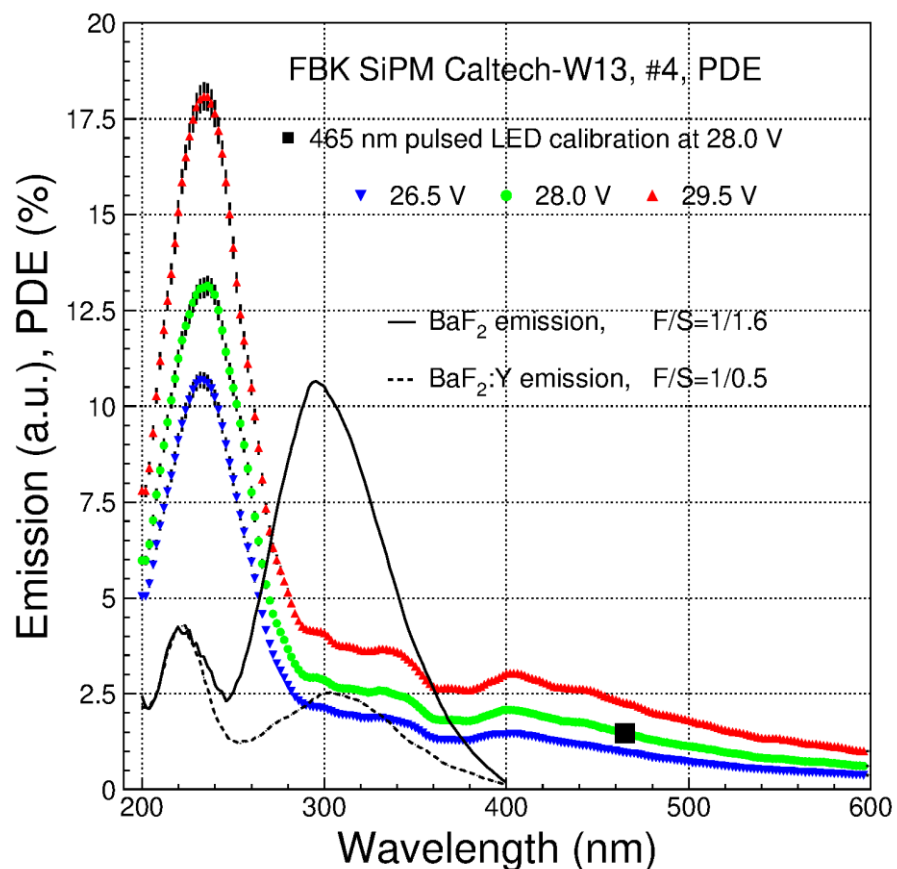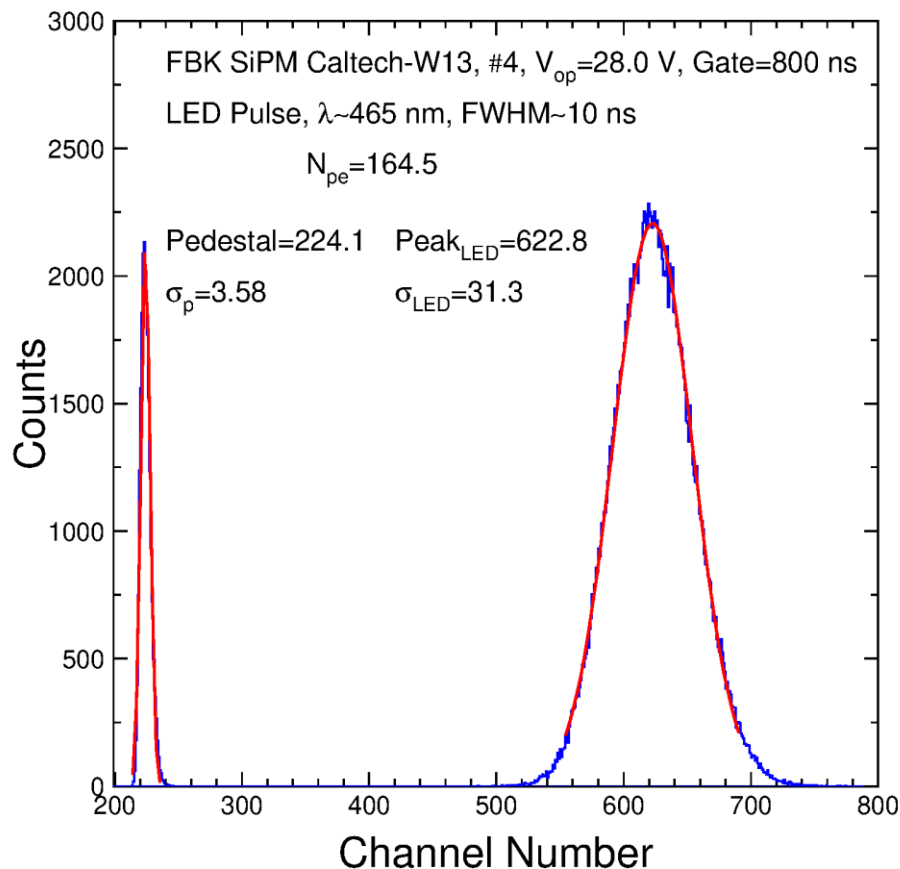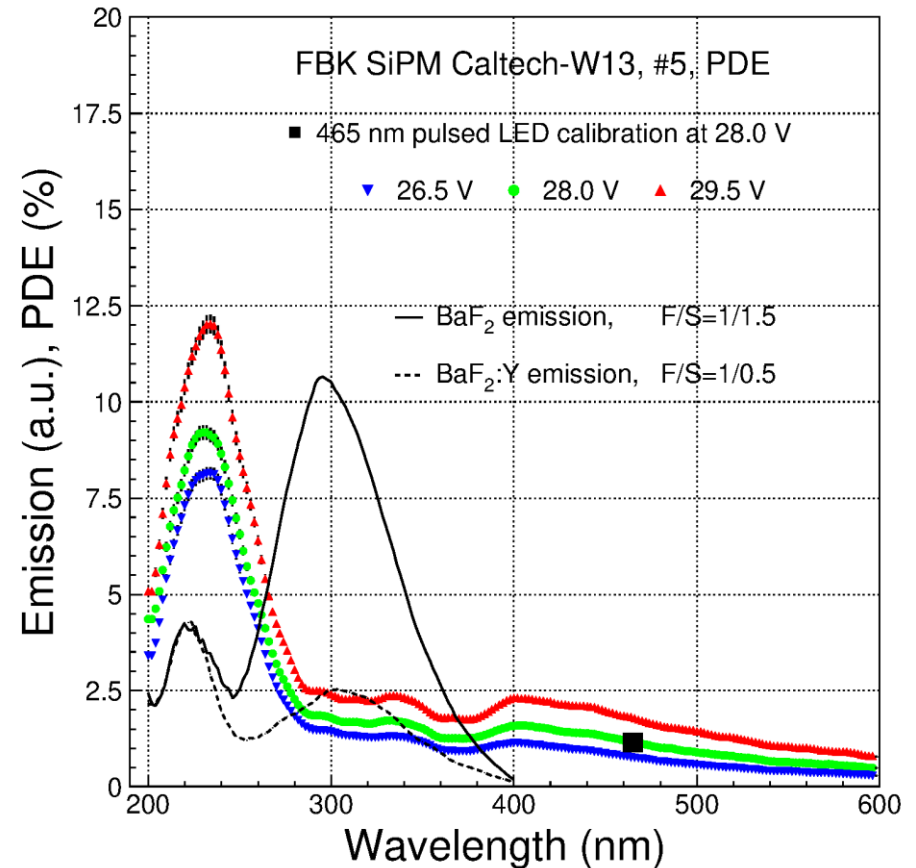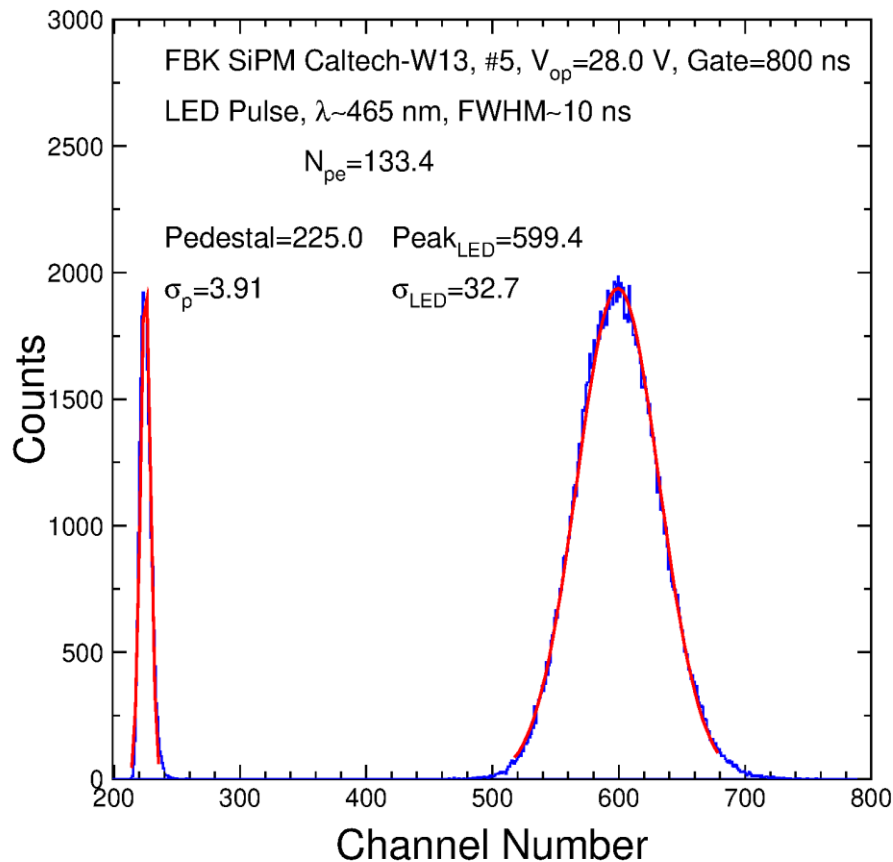
Input photons (465 nm LED pulse on 30 mm$^2$ active area): 13230
p.e.# at 28.0 V: 164.5,  PDE (465nm) =1.46% with ENF of 1.17 included
PDE($\lambda$) at 200-600 nm measured with $V_{op}$= 26.5, 28.0 and 29.5 V

# FBK SiPM: Caltech-W13, #5

Input photons (465 nm LED pulse on 30 mm$^2$ active area): 13230
p.e.# at 28.0 V: 133.4,  PDE (465nm) =1.15% with ENF of 1.14 included
PDE($\lambda$) at 200-600 nm measured with $V_{op}$= 26.5, 28.0 and 29.5 V .



FBK SiPM Caltech-W13, #5, $V_{op}$=28.0 V, Gate=800 ns

LED Pulse, $\lambda$~465 nm, FWHM~10 ns

$N_{pe}$=133.4

Pedestal=225.0    Peak$_{LED}$=599.4

$\sigma_p$=3.91         $\sigma_{LED}$=32.7



FBK SiPM Caltech-W13, #5, PDE

■ 465 nm pulsed LED calibration at 28.0 V

▼ 26.5 V     ● 28.0 V     ▲ 29.5 V

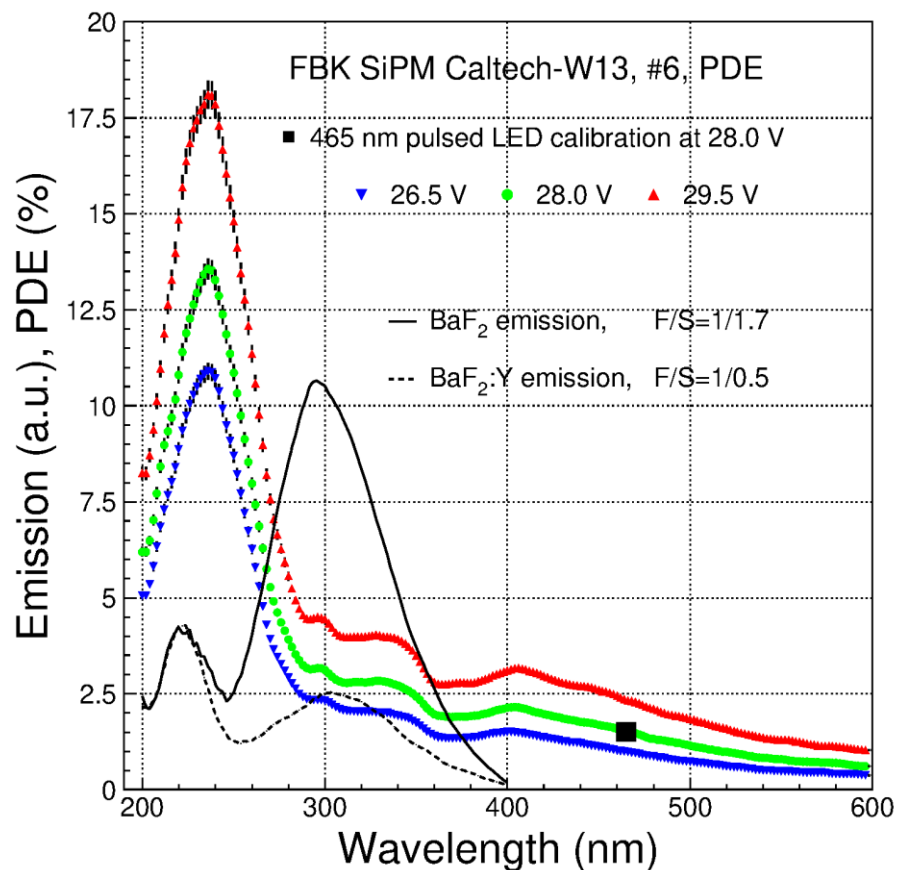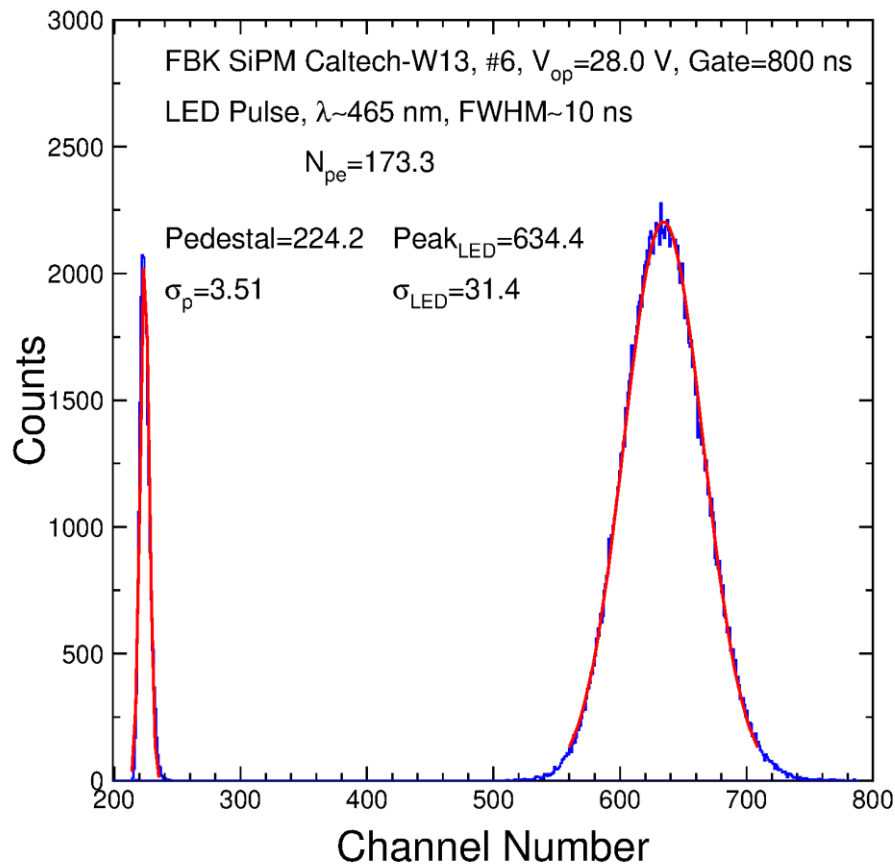— BaF$_2$ emission,      F/S=1/1.5
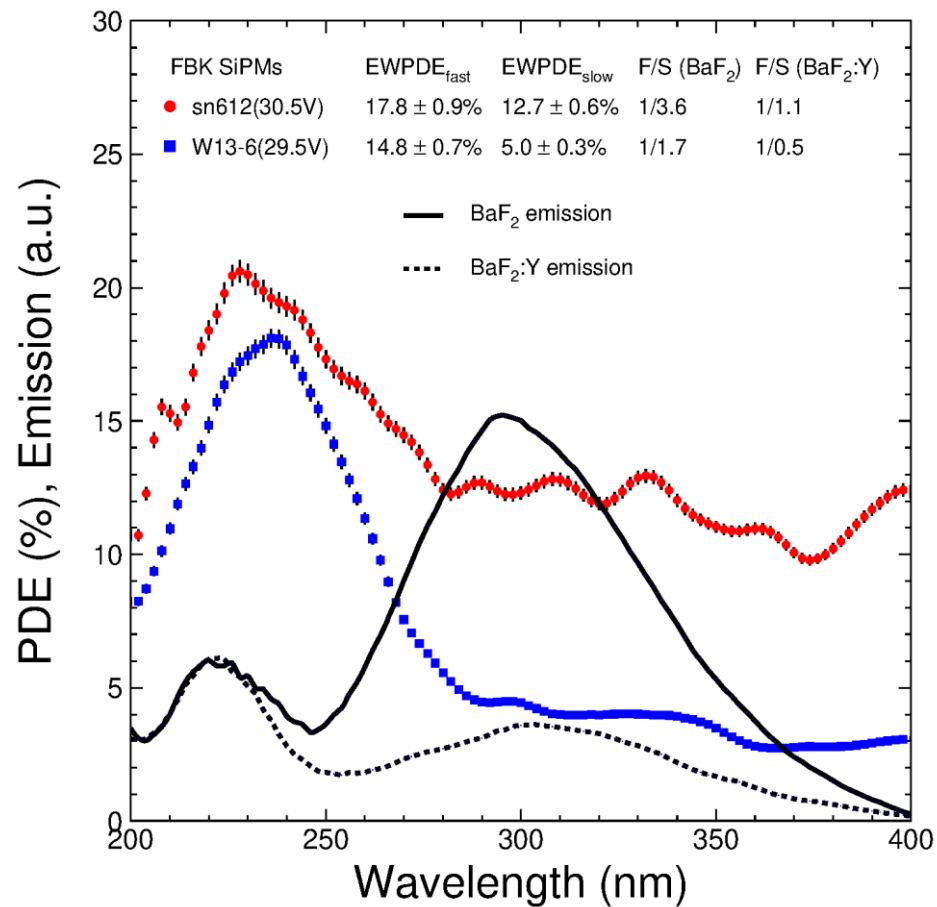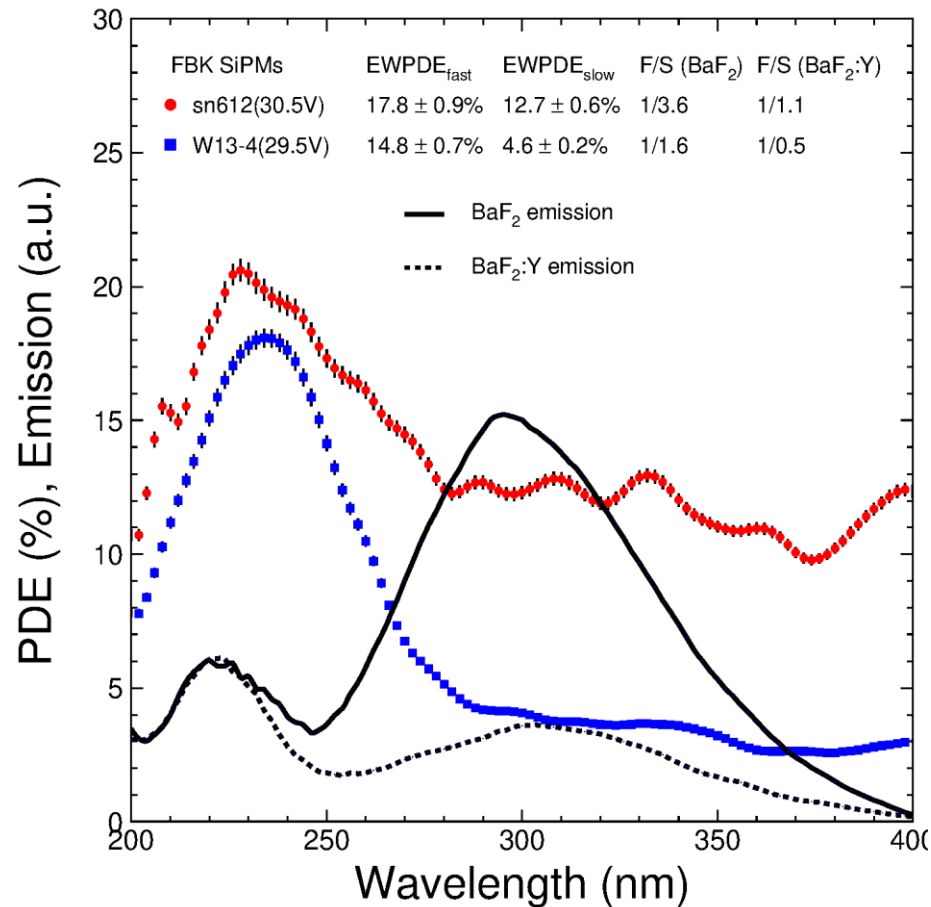
--- BaF$_2$:Y emission,   F/S=1/0.5

# FBK SiPM: Caltech-W13, #6

Input photons (465 nm LED pulse on 30 mm$^2$ active area): 13230
p.e.# at 28.0 V: 173.3,  PDE (465nm) =1.51% with ENF of 1.15 included
PDE($\lambda$) at 200-600 nm measured with $V_{op}$= 26.5, 28.0 and 29.5 V



FBK SiPM Caltech-W13, #6, $V_{op}$=28.0 V, Gate=800 ns

LED Pulse, $\lambda$~465 nm, FWHM~10 ns

$N_{pe}$=173.3

Pedestal=224.2    Peak$_{LED}$=634.4

$\sigma_p$=3.51    $\sigma_{LED}$=31.4

FBK SiPM Caltech-W13, #6, PDE

■ 465 nm pulsed LED calibration at 28.0 V

▼ 26.5 V    ● 28.0 V    ▲ 29.5 V

— BaF$_2$ emission,    F/S=1/1.7

--- BaF$_2$:Y emission,    F/S=1/0.5

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# Comparison with the Previous Batch

Fast/Slow ratio of 1/1.6 and 1/0.5 for $BaF_2$ and $BaF_2$:Y, respectively
More effective discrimination against $BaF_2$ slow component observed

# A Brief Summary

| SN | $V_{br}$ (V) | $V_{op}$ (V) | $EWPDE_{fast}$ (%) | $EWPDE_{slow}$ (%) | F/S ($BaF_2$) | F/S ($BaF_2$:Y) |
|---|---|---|---|---|---|---|
| Sn612 (Ref.) | 25.0 | 30.5 | 17.8 | 12.7 | 1/3.6 | 1/1.1 |
| W13-4 | 25.58 | 29.5 | 14.8 | 4.6 | 1/1.6 | 1/0.5 |
| W13-5 | 25.58 | 29.5 | 9.9 | 2.8 | 1/1.5 | 1/0.5 |
| W13-6 | 25.58 | 29.5 | 14.8 | 5.0 | 1/1.7 | 1/0.5 |

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