Timing shifts analysis for runs 2209-2218, Coming to ARIS SpecTcl v.27

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Research presentation

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- Timing shifts in run 2209-2218
- PID SpecTcl updates v.26.10
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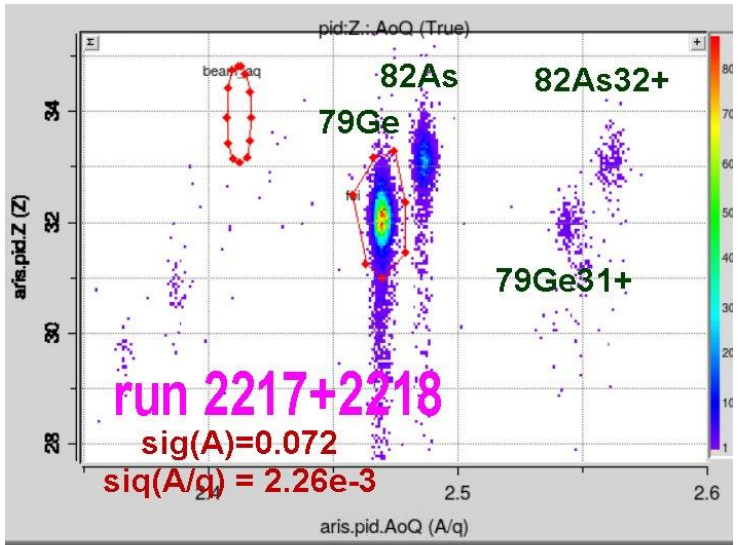
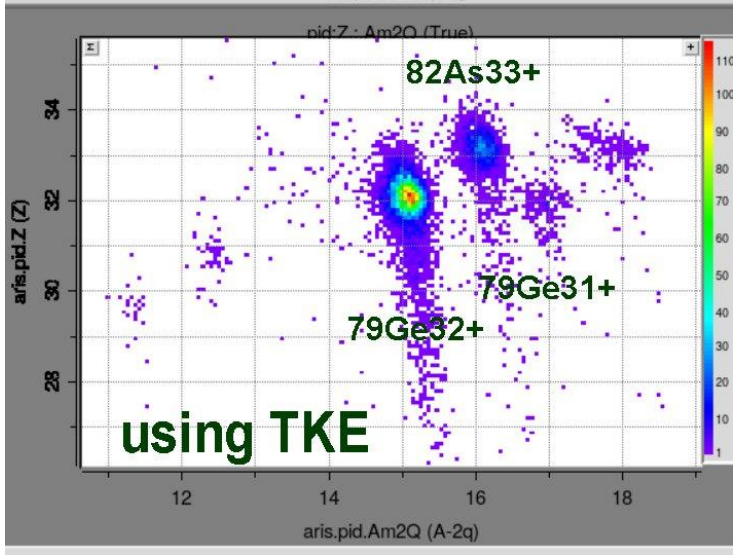
  - New timing parameters db34, db45;
    New parameters difference db34-db45
  - class PPAC : new parameter "delta_axy“
  - Revision of PID ToF method order

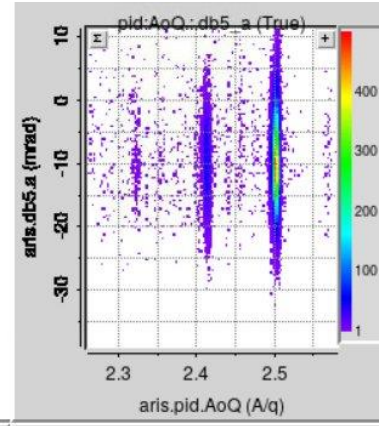
A/q resolution

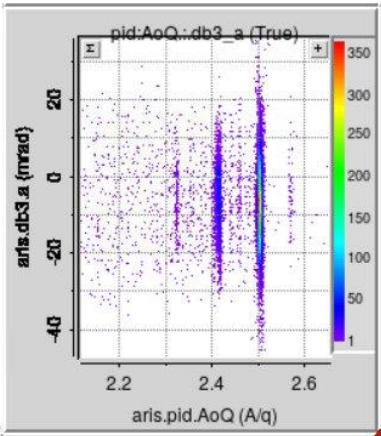


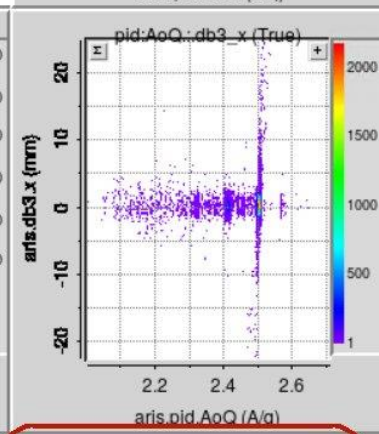


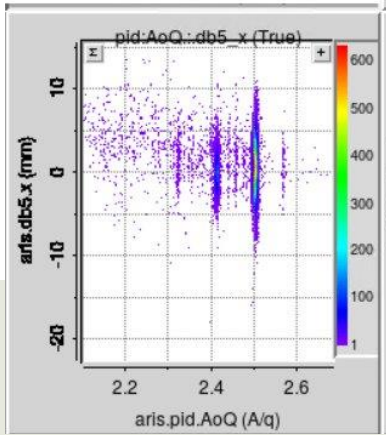
run 2217	reconstruction 34		
method	parameter	FWHM(A/q) x1000	
43	db3p0_xy.to_db5p0_xy	9.742	
48	db3p1_xy.to_db5p1_xy	10.819	
55	db3p0_a.to_db5p0_a	8.331	
65	db3p1_a.to_db5p1_a	11.785	
50	db3p0_a.to_db5pin	8.603	
51	db3p0_a.to_db5scin	6.055	incline -5
52	db3p0_a.to_db5scis	6.496	incline +3
62	db3p1_a.to_db5scis	8.239	incline +5
96	43+48	8.006	
97	51+62	5.555	
98	55+65	7.336	
99	51+52	5.737	
111	51+62+43+48	5.411	
114	51+62+43+48+55+65	5.333	
70	db3p0_a.to_db4p0_a	14.620	incline +10
84	db4p0_a.to_db5p0_a	18.514	incline -10
	sig(A/q)=	2.264	
	sig(A)=	0.072	

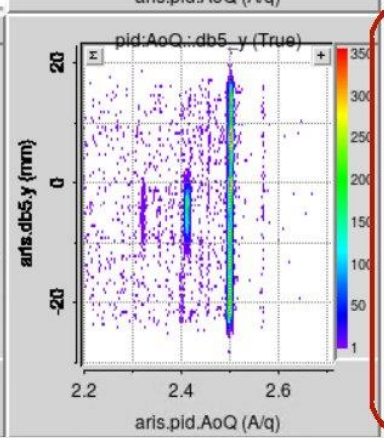
```
set aris.pid.brho_method 34 ;

set aris.Dip34.matr.xa  -0.2;
set aris.Dip45.matr.xa  -0.7;
```

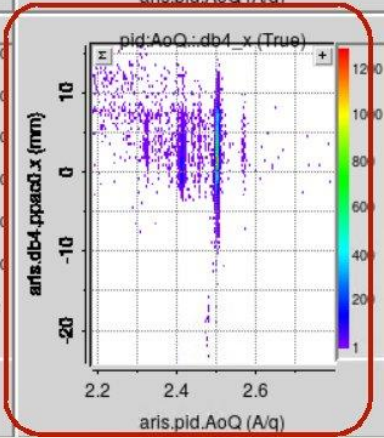












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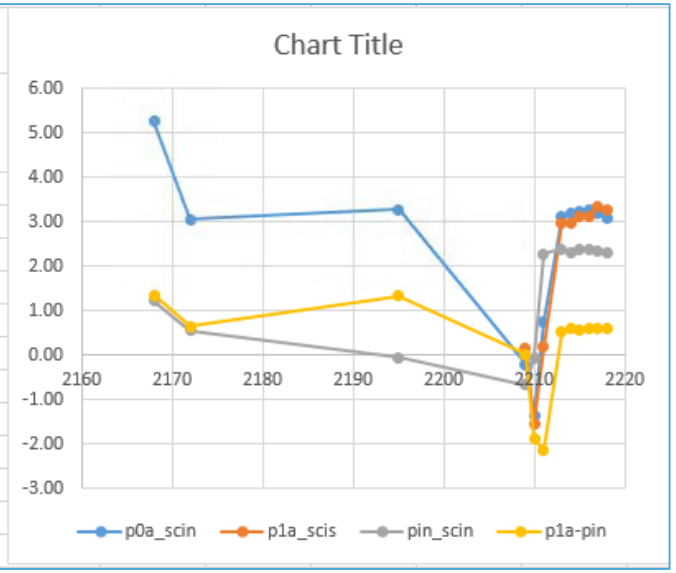
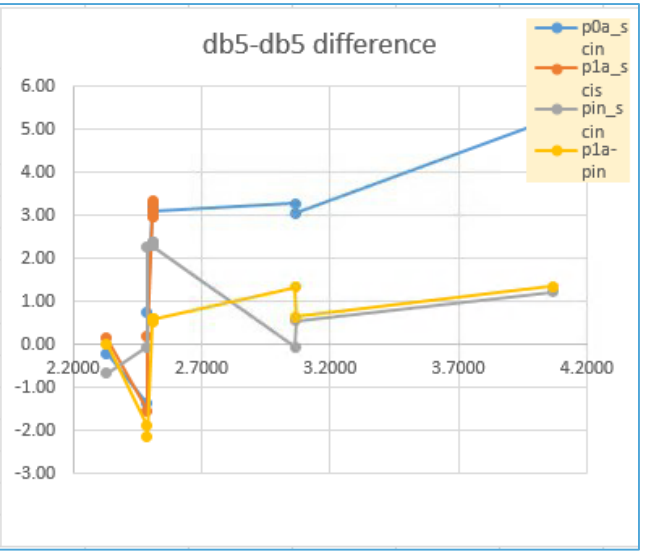
Timing shifts analysis [1]

sorted			rate			db34 - db45				db5-db5				ppac timing: Anode -XY (difference)				
run	Brho, 34	db5.sci R-bias	db3. ppac0. anode	db5. pin	db5. FSDT2.n	345_0 xy	345_0 a	345_1 xy	345_1 a	p0a_scin	p1a_scis	pin_scin	p1a-pin	db3p0	db3p1	db4p0	db5p0	db5p1
2168	4.0653		1519	1215	1219	4.7	5.4	-1.3	-0.7	5.26		1.22	1.35	-0.40	0.05	0.13	0.33	-0.10
2172	3.0681		14175	1318	1319	6.1	6.7	-1.8	-0.9	3.06		0.56	0.65	-0.37	-0.11	0.07	0.18	-0.24
2195	3.0623		7403	454	452	5.9	6.6	-2.0	-1.1	3.29		-0.05	1.34	-0.56	-0.20	0.01	0.20	-0.30
2209	2.3307	820.00	3743	395	23	10.5	10.5	-0.7	-0.7	-0.19	0.15	-0.67	0.03	-0.09	-0.07	-0.13	0.01	0.00
2210	2.4868	822.00	1953	426	423	9.2	8.0	-0.8	-2.2	-1.37	-1.54	-0.04	-1.89	-0.15	-0.10	-0.86	-0.09	-0.01
2211	2.4868	890.00	2575	425	424	8.9	7.3	-1.1	-2.9	0.76	0.19	2.28	-2.12	-0.15	-0.12	-1.06	-0.06	-0.05
2213	2.5079		400	242	248					3.12	2.99	2.39	0.52	-0.06	-0.15		0.02	-0.14
2214	2.5079									3.18	2.99	2.32	0.60	-0.05	-0.11		0.02	-0.13
2215	2.5079									3.24	3.11	2.39	0.56	-0.07	-0.14		0.00	-0.13
2216	2.5079									3.27	3.14	2.40	0.60	-0.05	-0.13		0.02	-0.15
2217	2.5079					9.6	9.8	-1.0	-0.5	3.18	3.34	2.34	0.60	-0.04	-0.13	0.02	0.07	-0.13
2218	2.5079	884.00	134	64	66	10.0	10.2	-0.7	-0.2	3.10	3.29	2.30	0.60	-0.02	-0.07	0.05	0.07	-0.13



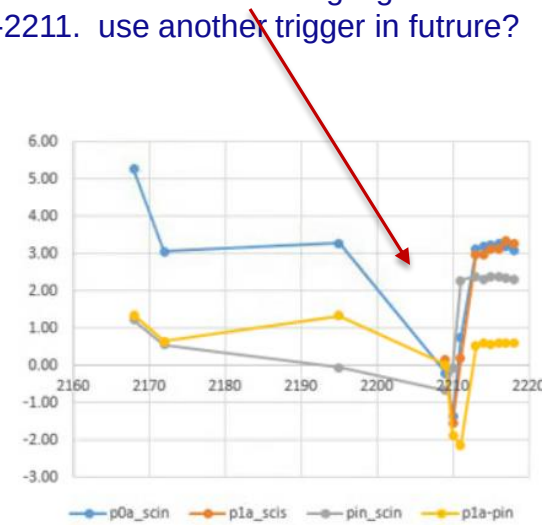
	sorted		rate			db34 - db45				db5-db5				ppac timing: Anode -XY (difference)				
run	Brho, 34	db5.sci R-bias	db3. ppac0. anode	db5. pin	db5. FSDT2.n	345_0 xy	345_0 a	345_1 xy	345_1 a	p0a_scin	p1a_scis	pin_scin	p1a-pin	db3p0	db3p1	db4p0	db5p0	db5p1
2209	2.3307	820.00	3743	395	23	10.5	10.5	-0.7	-0.7	-0.19	0.15	-0.67	0.03	-0.09	-0.07	-0.13	0.01	0.00
2210	2.4868	822.00	1953	426	423	9.2	8.0	-0.8	-2.2	-1.37	-1.54	-0.04	-1.89	-0.15	-0.10	-0.86	-0.09	-0.01
2211	2.4868	890.00	2575	425	424	8.9	7.3	-1.1	-2.9	0.76	0.19	2.28	-2.12	-0.15	-0.12	-1.06	-0.06	-0.05
2213	2.5079		400	242	248					3.12	2.99	2.39	0.52	-0.06	-0.15		0.02	-0.14
2214	2.5079									3.18	2.99	2.32	0.60	-0.05	-0.11		0.02	-0.13
2215	2.5079									3.24	3.11	2.39	0.56	-0.07	-0.14		0.00	-0.13
2216	2.5079									3.27	3.14	2.40	0.60	-0.05	-0.13		0.02	-0.15
2217	2.5079					9.6	9.8	-1.0	-0.5	3.18	3.34	2.34	0.60	-0.04	-0.13	0.02	0.07	-0.13
2218	2.5079	884.00	134	64	66	10.0	10.2	-0.7	-0.2	3.10	3.29	2.30	0.60	-0.02	-0.07	0.05	0.07	-0.13
2195	3.0623		7403	454	452	5.9	6.6	-2.0	-1.1	3.29		-0.05	1.34	-0.56	-0.20	0.01	0.20	-0.30
2172	3.0681		14175	1318	1319	6.1	6.7	-1.8	-0.9	3.06		0.56	0.65	-0.37	-0.11	0.07	0.18	-0.24
2168	4.0653		1519	1215	1219	4.7	5.4	-1.3	-0.7	5.26		1.22	1.35	-0.40	0.05	0.13	0.33	-0.10



Timing shifts analysis [2]

		FOI	84Se	80Ge	79Ge	79Ge				
	timing_offset	Sci bias	820 V	**820 V**	**890 V**	890 V		**difference between offsets**		
	Brho 34		2.3307	2.4868	2.4868	2.5079				
method	parameter / run	**2208**	**2209**	**2210**	**2211**	**2217**		2209-2210	2210-2217	2209-2217
43	db3p0_xy.to_db5p0_xy		132.4	132.0	132.0	131.1		0.4	0.9	1.3
48	db3p1_xy.to_db5p1_xy		126.3	126.3	126.3	124.7		0.0	1.6	1.6
55	db3p0_a.to_db5p0_a	70.15	72.8	72.0	72.0	71.2		0.8	0.8	1.6
65	db3p1_a.to_db5p1_a	66.5	67.3	67.0	67.0	65.7		0.3	1.3	1.6
50	db3p0_a.to_db5pin		644.4	641.9	641.6	643.1	pin	2.5	-1.2	1.3
51	db3p0_a.to_db5scin	481	482.5	480.0	482.1	483.5	scin	2.5	-3.5	-1.0
62	db3p1_a.to_db5scis		476.0	474.0	475.8	477.4	scis	2.0	-3.4	-1.4
52	db3p0_a.to_db5scis					481.8				
70	db3p0_a.to_db4p0_a		34.4	34.9	35.5	33.7		-0.5	1.2	0.7
84	db4p0_a.to_db5p0_a		38.0	36.9	36.5	37.5		1.1	-0.6	0.5

- Timing differences between PPAC Anode and XY signals were stable for all PPACs except db4.ppac.0 in runs 2210 and 2211
- No observed shifts between modules db34 and db5
- No explanation for 1.6 ns for db3-db5 ppac timing signal shifts between run 2209 and 2217. Optics reconstruction? PID issue? Trigger impact??
- Complete mess with all timing signals in runs 2209-2211. use another trigger in futrure?



PID SpecTcl updates v.10

04/13/2024 v.26.1 TKEbox=53,54 for TKE db5.FDST2.n and db5.FDST2.s
****
04/24/2024 v.26.2 new timing parameters
ARIStimingToDB4 DB34p0_a, ARIStimingToDB4 DB34p1_a,
ARIStimingToDB4 DB34p0_xy, ARIStimingToDB4 DB34p1_xy
****
04/24/2024 v.26.3
new CTreeParameter : difference between timing parameters
deltaToF345_0, deltaToF345_1, deltaToF345_0xy, deltaToF345_1xy
: these parameters do not include offsets
****
04/26/2024 v.26.4
new CTreeParameter : difference between timing parameters
deltaToF5_p0a_scin, CTreeParameter deltaToF5_p1a_scis, deltaToF5_pin_scin
:these parameters include offsets
****
04/26/2024 v.26.5
for all dipole segments length_correct_use variable -1,0,1
deltaL -= aris.Dip.deltaL * aris.pid.length_correct_use
****
04/27/2024 v.26.6 no more PPAC timing signals from x and y. Only xy or anode
****
04/27/2024 v.26.7
new CTreeParameter : difference between timing parameters
deltaToF345_0axy, deltaToF345_1axy
****
04/27/2024 v.26.8 class PPAC : new parameter "delta_axy"
****
04/27/2024 v.26.9 spectrum name modifications : RF, trigger
****
04/28/2024 v.26.10 revision of ToF method order

J:\Projects\SpecTcl\v26.10_PID_Develop_2024_04_29\calibrations\ArisVariables.tcl - Editor – WinSCP

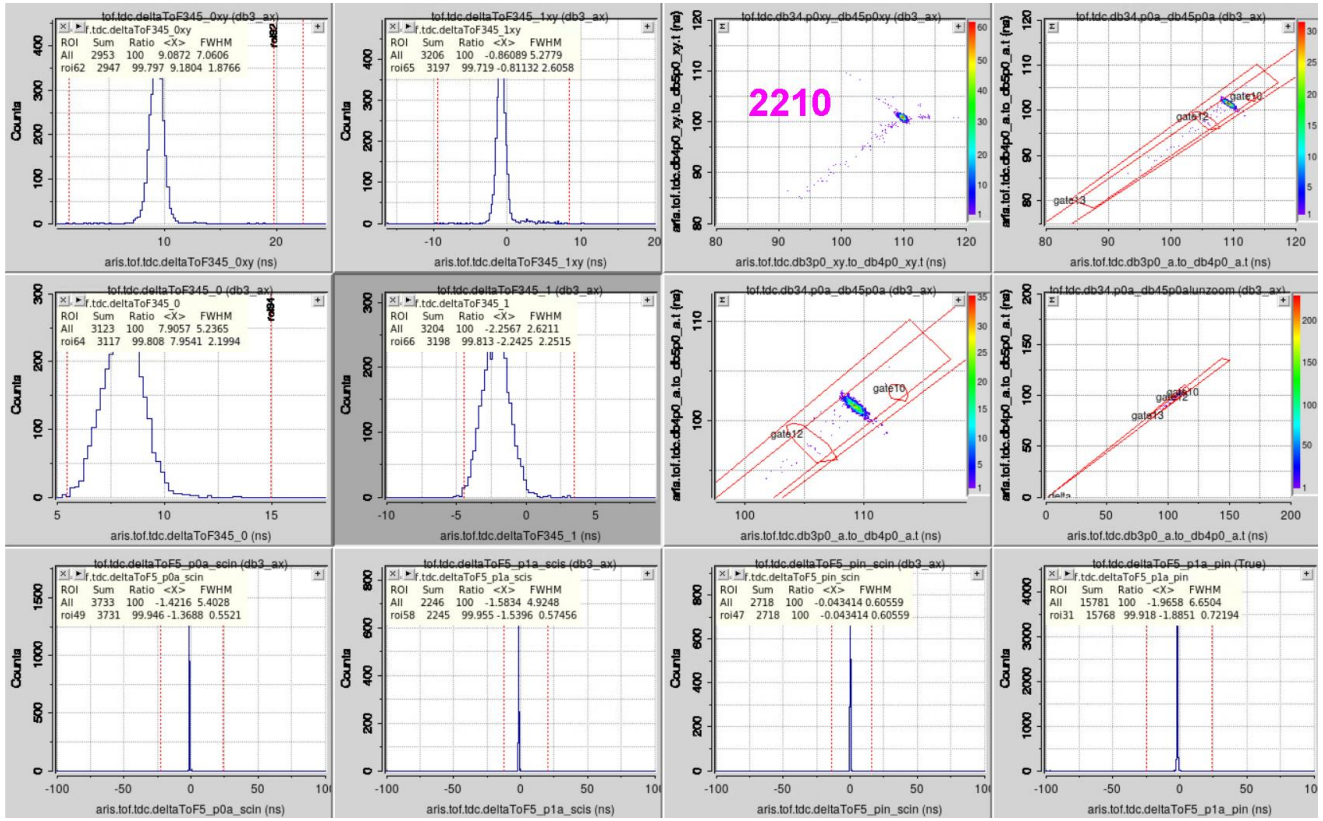
Encoding ▾ Color ▾

```
puts  -nonewline "<< ARISVariables  start: "

# $Id: ARISVariables.tcl,v 1.0  $
#
# A1RIS Calibration file
#================================================================================

set aris.online 0 ;# 0 use absolute values
set aris.skipPingDataInfo 1; # 0= off
set aris.debug 0; #0/1 off/on
set aris.debugValue 5; # invalid channel being filling

global RunNumber ;# Get the run number from the calling function.
puts "RunNumber --> ${RunNumber}"

#--------------------------------------------------------------------------

#rf shifted n number of 200 ns to fit inside 0-200 ns window
#set aris.tof.tdc.rf1.offset  3240.  ;#ns -relative to trigger

set aris.tof.tdc.rf1.offset  40.  ;#ns
set aris.tof.tdc.rf2.offset   0.  ;#ns -selectable channel on tdc2
set aris.tof.tdc.RF2channel  14 ;# channel number (stack3-7 not used)-see ArisPackets.
#--------------------------------------------------------------------------

source ./calibrations/locations.tcl
source ./calibrations/ppac.tcl
source ./calibrations/scintillator.tcl
source ./calibrations/si-ge.tcl
source ./calibrations/tdcgate.tcl
source ./calibrations/tof.tcl
source ./calibrations/pid.tcl
source ./calibrations/brho.tcl
#--------------------------------------------------------------------------

puts  ">> -- ARISVariables end -->>"
```

New calibration file

New timing parameters

```
  //-----------------------------------------ARIStimingToDB4----------

  DB34p0_a.Initialize(name+".db3p0_a",  aris.db[3].ppac[0].a);
  DB34p1_a.Initialize(name+".db3p1_a",  aris.db[3].ppac[1].a);
  DB34p0_xy.Initialize(name+".db3p0_xy",  aris.db[3].ppac[0].sum_xyc);
  DB34p1_xy.Initialize(name+".db3p1_xy",  aris.db[3].ppac[1].sum_xyc);

  //-----------------------------------------ARIStimingToDB5----------

  DB4p0_a.Initialize(name+".db4p0_a", aris.db[4].ppac[0].a);
  DB4p0_xy.Initialize(name+".db4p0_xy",aris.db[4].ppac[0].sum_xyc);

//------------------------------------------------- delta 34-45
  CTreeParameter deltaToF345_0a;    // anodes
  CTreeParameter deltaToF345_1a;    // anodes
  CTreeParameter deltaToF345_0xy;  // xy-xy | xy-xy
  CTreeParameter deltaToF345_1xy;  // xy-xy | xy-xy
  CTreeParameter deltaToF345_0axy; // a-xy  | xy-a
  CTreeParameter deltaToF345_1axy; // a-xy  | xy-a
```



it was implemented

- to prevent timing shifts between modules db34 and db5
- to prevent PPAC timing shifts between models
- to analyze timing shifts in runs 2209-2218

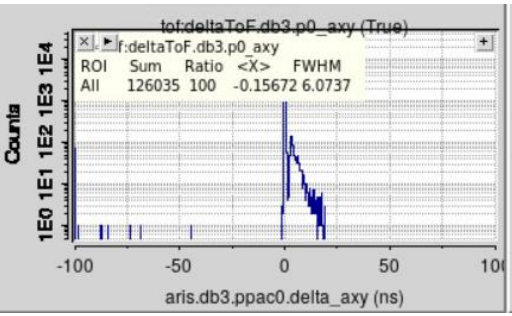
PPAC: No more timing signals from x or from y. Only xy or anode

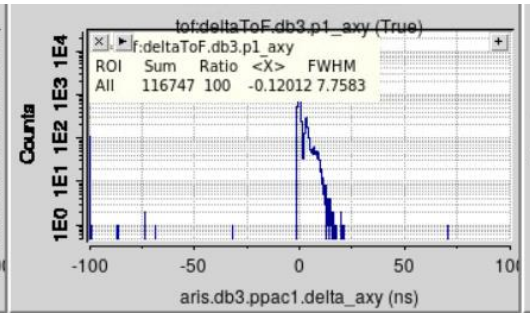
```
//    DB3p0_x.Initialize(name+".db3p0_x", aris.db[3].ppac[0].sumxc);
//    DB3p0_y.Initialize(name+".db3p0_y", aris.db[3].ppac[0].sumyc);

//    DB3p1_x.Initialize(name+".db3p1_x", aris.db[3].ppac[1].sumxc);
//    DB3p1_y.Initialize(name+".db3p1_y", aris.db[3].ppac[1].sumyc);
```

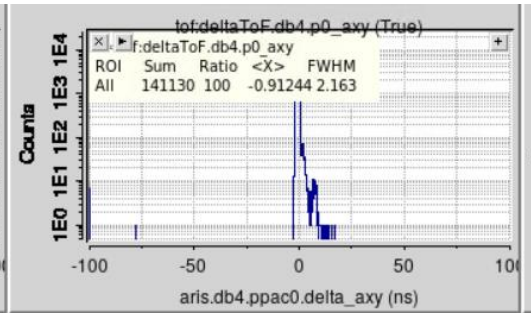
class PPAC : new parameter "delta_axy"

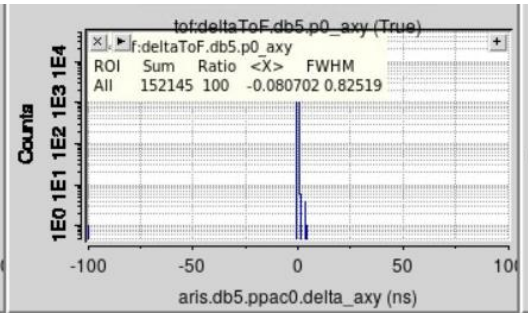
```
class ARISppac : public ARISdetector
{
public:

  CTreeParameter delta_axy;
  CTreeVariable  delta_axy_offset;
```

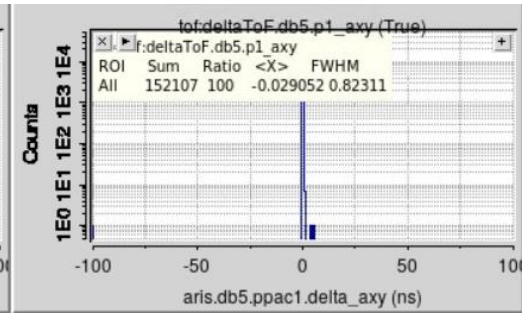
```
//XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  delta axy
    if(sum_xyc.t.isValid() &&  a.t.isValid() && a.t > 1)
    {
        delta_axy = a.t - sum_xyc.t + delta_axy_offset;
    }
    else
    {
        delta_axy = 0;
        delta_axy.setInvalid();
    }
```











Revision of PID ToF method order

```
// db1-db5

  case 1: seg=dbseg_15;  p[0] = &aris.tof.tdc.DB1sci.to_db5pin;
  case 2: seg=dbseg_15;  p[0] = &aris.tof.tdc.DB1sci.to_db5sci;
  case 3: seg=dbseg_15;  p[0] = &aris.tof.tdc.DB1sci.to_db5scin;
  case 4: seg=dbseg_15;  p[0] = &aris.tof.tdc.DB1p0_a.to_db5p0_a;
  case 5: seg=dbseg_15;  p[0] = &aris.tof.tdc.DB1p1_a.to_db5p1_a;
  case 6: seg=dbseg_15;  p[0] = &aris.tof.tdc.DB1p0_xy.to_db5p0_xy;
  case 7: seg=dbseg_15;  p[0] = &aris.tof.tdc.DB1p1_xy.to_db5p1_xy;

// db1-db3

  case 10: seg=dbseg_13;  p[0] = &aris.tof.tdc.DB13sci.to_db3scin;
  case 11: seg=dbseg_13;  p[0] = &aris.tof.tdc.DB13sci.to_db3p0_a;
  case 12: seg=dbseg_13;  p[0] = &aris.tof.tdc.DB13sci.to_db3p1_a;
  case 13: seg=dbseg_13;  p[0] = &aris.tof.tdc.DB13p0_a.to_db3p0_a;
  case 14: seg=dbseg_13;  p[0] = &aris.tof.tdc.DB13p1_a.to_db3p1_a;

// tac & trigger  35

  case 16: seg=dbseg_35;  p[0] = &aris.tof.tac.db3or4;
  case 17: seg=dbseg_35;  p[0] = &aris.tof.tdc.trigDB3p0_a;
  case 18: seg=dbseg_35;  p[0] = &aris.tof.tdc.trigDB3p1_a;

// DB3 sciN - db5

  case 20:  seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3scin.to_db5scin;
  case 21:  seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3scin.to_db5sci;
  case 22:  seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3scin.to_db5pin;
  case 23:  seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3scin.to_db5si0;
  case 24:  seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3scin.to_db5si1;
  case 25:  seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3scin.to_db5p0_a;
  case 26:  seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3scin.to_db5p1_a;

// DB3 sciS - db5

  case 30: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3scis.to_db5scis;
  case 31: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3scis.to_db5sci;
  case 32: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3scis.to_db5pin;
  case 33: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3scis.to_db5p0_a;
  case 34: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3scis.to_db5p1_a;
```

```
// DB3 ppac xy - db5

  case 40: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p0_xy.to_db5pin;
  case 41: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p0_xy.to_db5scin;
  case 42: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p0_xy.to_db5scis;
  case 43: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p0_xy.to_db5p0_xy;
  case 44: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p0_xy.to_db5p0_a;

  case 45: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p1_xy.to_db5pin;
  case 46: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p1_xy.to_db5scin;
  case 47: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p1_xy.to_db5scis;
  case 48: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p1_xy.to_db5p1_xy;
  case 49: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p1_xy.to_db5p1_a;

// DB3 p0_a - db5

  case 50: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p0_a.to_db5pin;
  case 51: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p0_a.to_db5scin;
  case 52: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p0_a.to_db5scis;
  case 53: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p0_a.to_db5sci;
  case 54: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p0_a.to_db5p0_xy;
  case 55: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p0_a.to_db5p0_a;

// DB3 p1_a - db5

  case 60: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p1_a.to_db5pin;
  case 61: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p1_a.to_db5scin;
  case 62: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p1_a.to_db5scis;
  case 63: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p1_a.to_db5sci;
  case 64: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p1_a.to_db5p1_xy;
  case 65: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p1_a.to_db5p1_a;

// DB3-pppac -- DB4-ppac

  case 70: seg=dbseg_34;  p[0] = &aris.tof.tdc.DB34p0_a.to_db4p0_a;
  case 71: seg=dbseg_34;  p[0] = &aris.tof.tdc.DB34p1_a.to_db4p0_a;
  case 72: seg=dbseg_34;  p[0] = &aris.tof.tdc.DB34p0_xy.to_db4p0_xy;
  case 73: seg=dbseg_34;  p[0] = &aris.tof.tdc.DB34p1_xy.to_db4p0_xy;

// DB4-pppac  -- DB5

  case 80: seg=dbseg_45;  p[0] = &aris.tof.tdc.DB4p0_a.to_db5pin;
  case 81: seg=dbseg_45;  p[0] = &aris.tof.tdc.DB4p0_a.to_db5scin;
  case 82: seg=dbseg_45;  p[0] = &aris.tof.tdc.DB4p0_a.to_db5scis;
  case 83: seg=dbseg_45;  p[0] = &aris.tof.tdc.DB4p0_a.to_db5sci;
  case 84: seg=dbseg_45;  p[0] = &aris.tof.tdc.DB4p0_a.to_db5p0_a;
  case 85: seg=dbseg_45;  p[0] = &aris.tof.tdc.DB4p0_a.to_db5p1_a;
```

```
  case 88: seg=dbseg_45;  p[0] = &aris.tof.tdc.DB4p0_xy.to_db5p0_xy;
  case 89: seg=dbseg_45;  p[0] = &aris.tof.tdc.DB4p0_xy.to_db5p1_xy;

// averages  ============================================================

  case 90:  seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3scin.to_db5pin;
                           p[1] = &aris.tof.tac.db3or4;

  case 91:  seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3scis.to_db5scis;
                           p[1] = &aris.tof.tdc.DB3scin.to_db5scin;

  case 92:  seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3scin.to_db5pin;
                           p[1] = &aris.tof.tdc.DB3scin.to_db5si0;

  case 93:  seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3scin.to_db5pin;
                           p[1] = &aris.tof.tdc.DB3scin.to_db5si0;
                           p[2] = &aris.tof.tac.db3or4;

  case 94:  seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3scin.to_db5pin;
                           p[1] = &aris.tof.tdc.DB3scin.to_db5si0;
                           p[2] = &aris.tof.tdc.DB3scin.to_db5si1;

//--------------------------
  case 95: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p0_a.to_db5p0_xy;
                          p[1] = &aris.tof.tdc.DB3p1_a.to_db5p1_xy;

  case 96: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p0_xy.to_db5p0_xy;
                          p[1] = &aris.tof.tdc.DB3p1_xy.to_db5p1_xy;

  case 97: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p0_a.to_db5scin;
                          p[1] = &aris.tof.tdc.DB3p1_a.to_db5scis;

  case 98: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p0_a.to_db5p0_a;
                          p[1] = &aris.tof.tdc.DB3p1_a.to_db5p1_a;

  case 99: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p0_a.to_db5scin;
                          p[1] = &aris.tof.tdc.DB3p0_a.to_db5scis;

  case 100: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p1_a.to_db5scin;
                           p[1] = &aris.tof.tdc.DB3p1_a.to_db5scis;
```

/user/arisdaq/PID/Develop/v26/calibrations/

Name

- matrix
- old_brho
- previous
- ArisVariables.tcl
- brho.tcl
- locations.tcl
- pid.tcl
- ppac.tcl
- scintillator.tcl
- si-ge.tcl
- tdcgate.tcl
- tof.tcl
- ToF_method.txt

```
//-------------------- averages  4 and more

case 110: seg=dbseg_35;  p[0] = &aris.tof.tdc.DB3p0_a.to_db5p0_a;
                         p[1] = &aris.tof.tdc.DB3p1_a.to_db5p1_a;
                         p[2] = &aris.tof.tdc.DB3p0_xy.to_db5p0_xy;
                         p[3] = &aris.tof.tdc.DB3p1_xy.to_db5p1_xy;

case 111: seg=dbseg_35;
                          p[0] = &aris.tof.tdc.DB3p0_xy.to_db5p0_xy;
                          p[1] = &aris.tof.tdc.DB3p1_xy.to_db5p1_xy;
                          p[2] = &aris.tof.tdc.DB3p0_a.to_db5scin;
                          p[3] = &aris.tof.tdc.DB3p1_a.to_db5scis;

case 112: seg=dbseg_35; p[0] = &aris.tof.tdc.DB3p0_a.to_db5p0_a;
                        p[1] = &aris.tof.tdc.DB3p1_a.to_db5p1_a;
                        p[2] = &aris.tof.tdc.DB3p0_a.to_db5p0_xy;
                        p[3] = &aris.tof.tdc.DB3p1_a.to_db5p1_xy;
                        p[4] = &aris.tof.tdc.DB3p0_xy. to_db5pin;
                        p[5] = &aris.tof.tdc.DB3p1_xy. to_db5pin;

case 113: seg=dbseg_35;
                      p[0] = &aris.tof.tdc.DB3p0_a.to_db5p0_a;
                      p[1] = &aris.tof.tdc.DB3p1_a.to_db5p1_a;
                      p[2] = &aris.tof.tdc.DB3p0_xy.to_db5p0_xy;
                      p[3] = &aris.tof.tdc.DB3p1_xy.to_db5p1_xy;
                      p[4] = &aris.tof.tdc.DB3scis.to_db5scis;
                      p[5] = &aris.tof.tdc.DB3scin.to_db5scin;

case 114: seg=dbseg_35;
                      p[0] = &aris.tof.tdc.DB3p0_a.to_db5p0_a;
                      p[1] = &aris.tof.tdc.DB3p1_a.to_db5p1_a;
                      p[2] = &aris.tof.tdc.DB3p0_xy.to_db5p0_xy;
                      p[3] = &aris.tof.tdc.DB3p1_xy.to_db5p1_xy;
                      p[4] = &aris.tof.tdc.DB3p0_a.to_db5scin;
                      p[5] = &aris.tof.tdc.DB3p1_a.to_db5scis;
```

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