

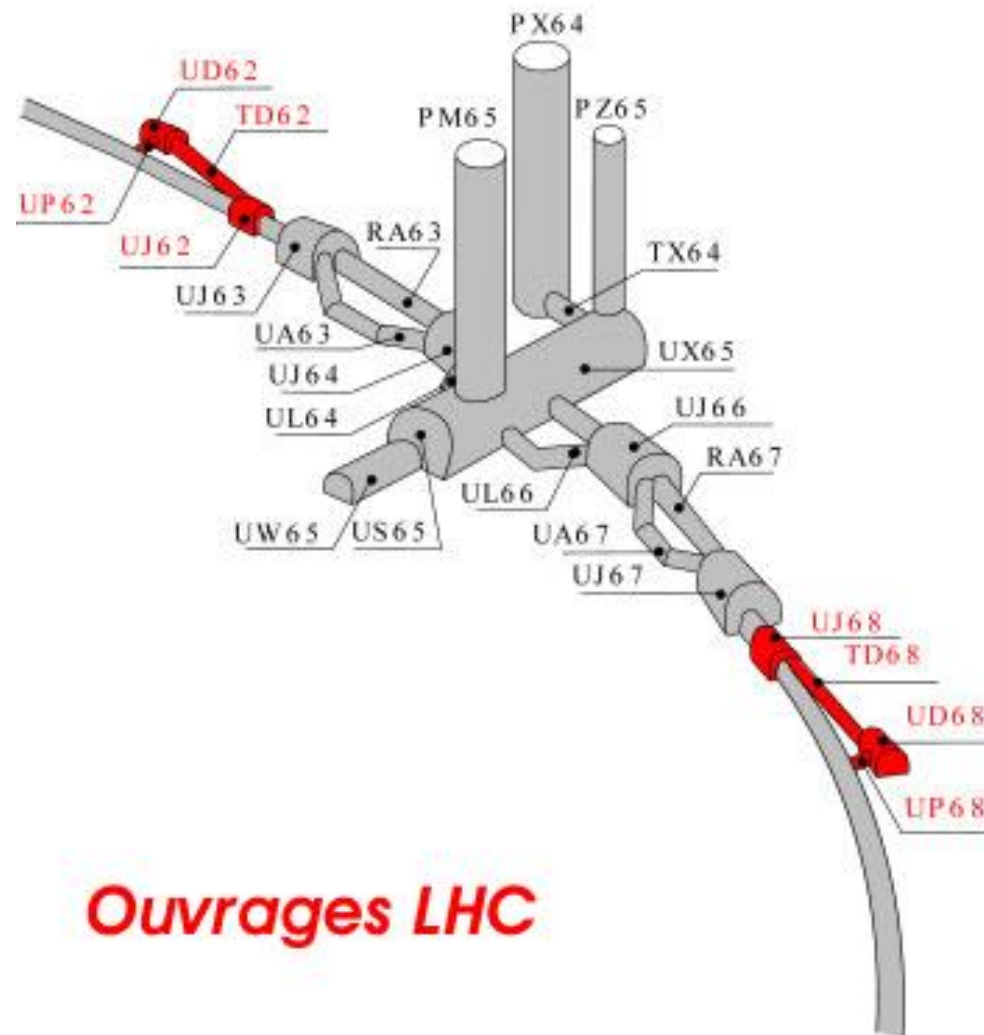


LARGE HADRON COLLIDER BEAM DUMPING SYSTEM

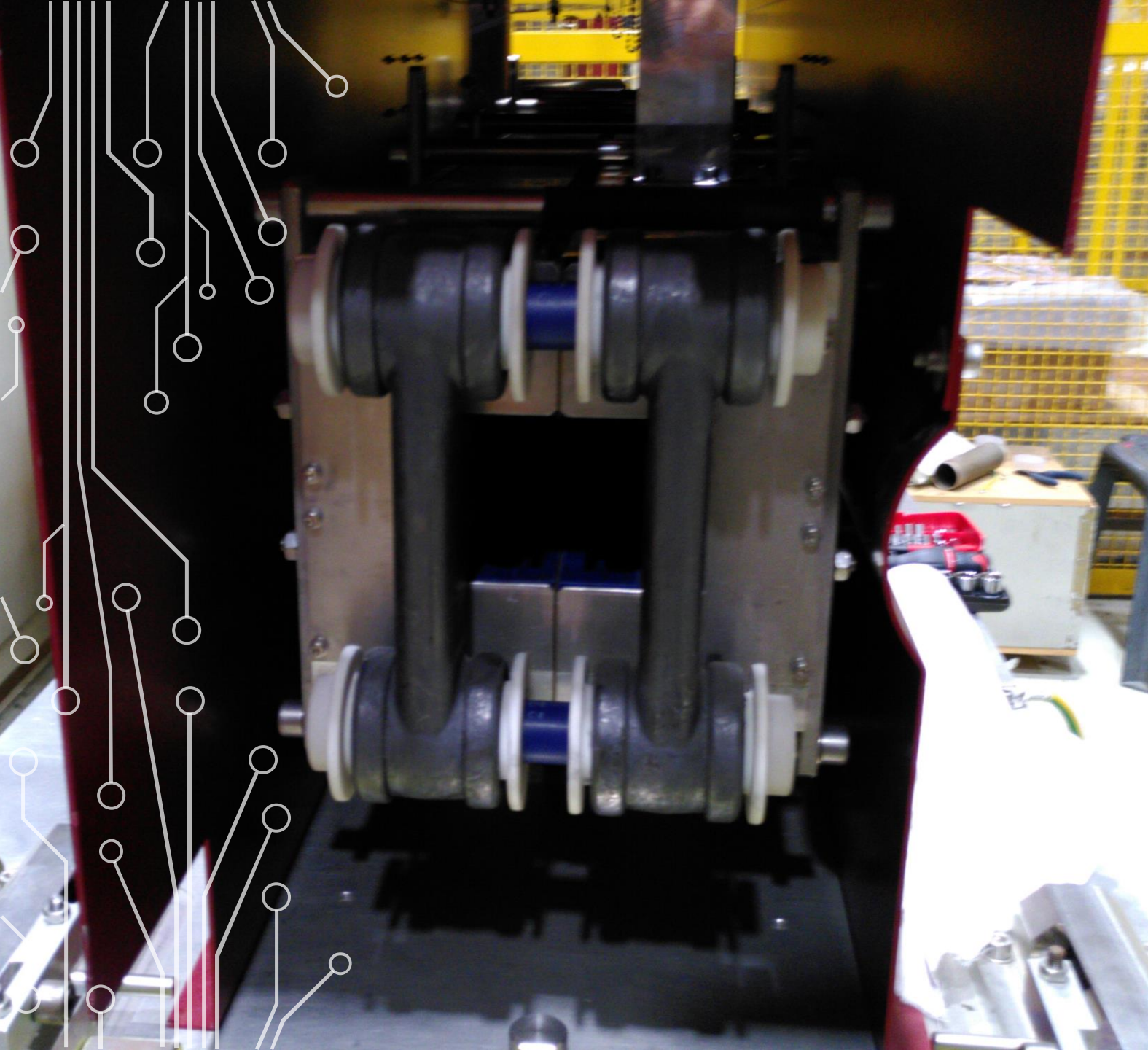
*BY JOSEPH LOUIS
RABIL & JEREMY
VINCENT MATTER*

POINT 6

Point 6



Ouvrages LHC



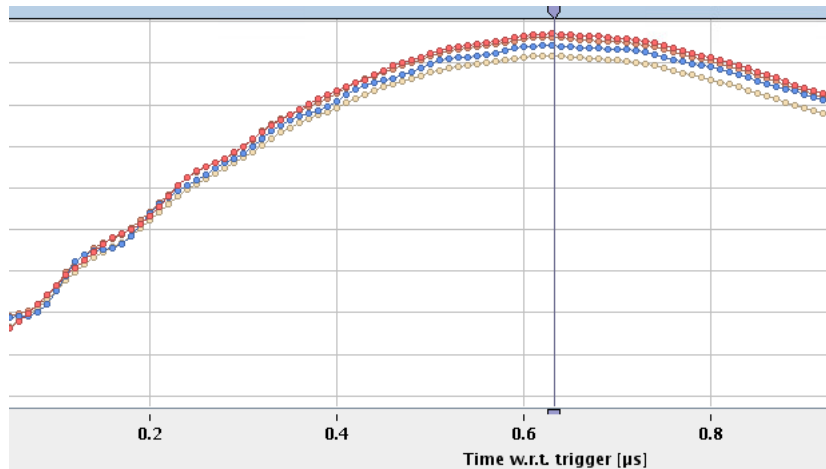
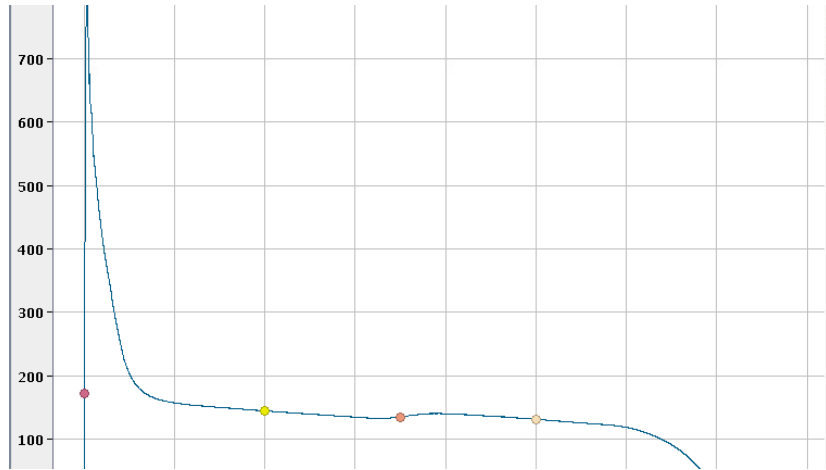
KICKER MAGNETS



»THE WAY OF
THE
GENERATORS»

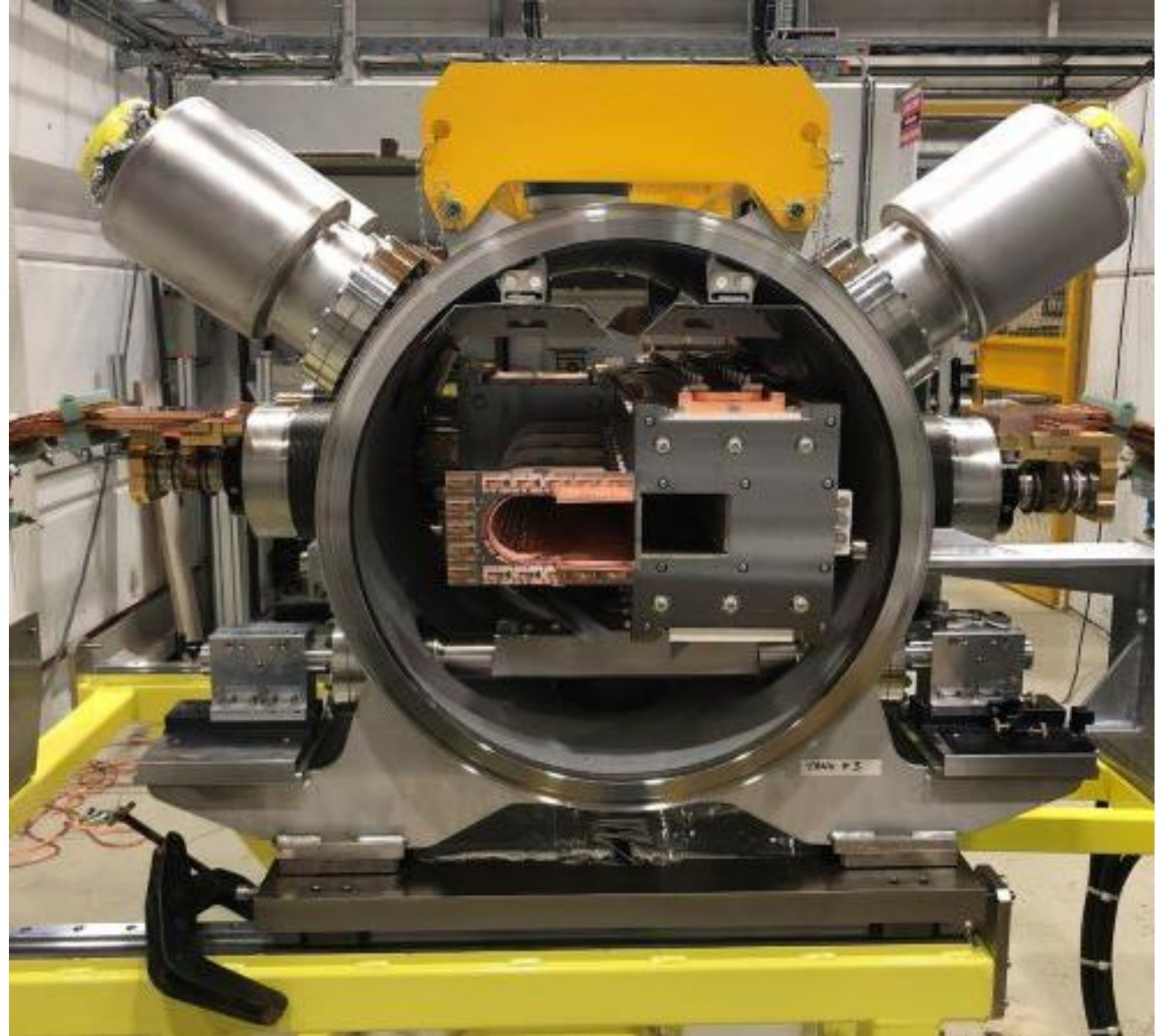


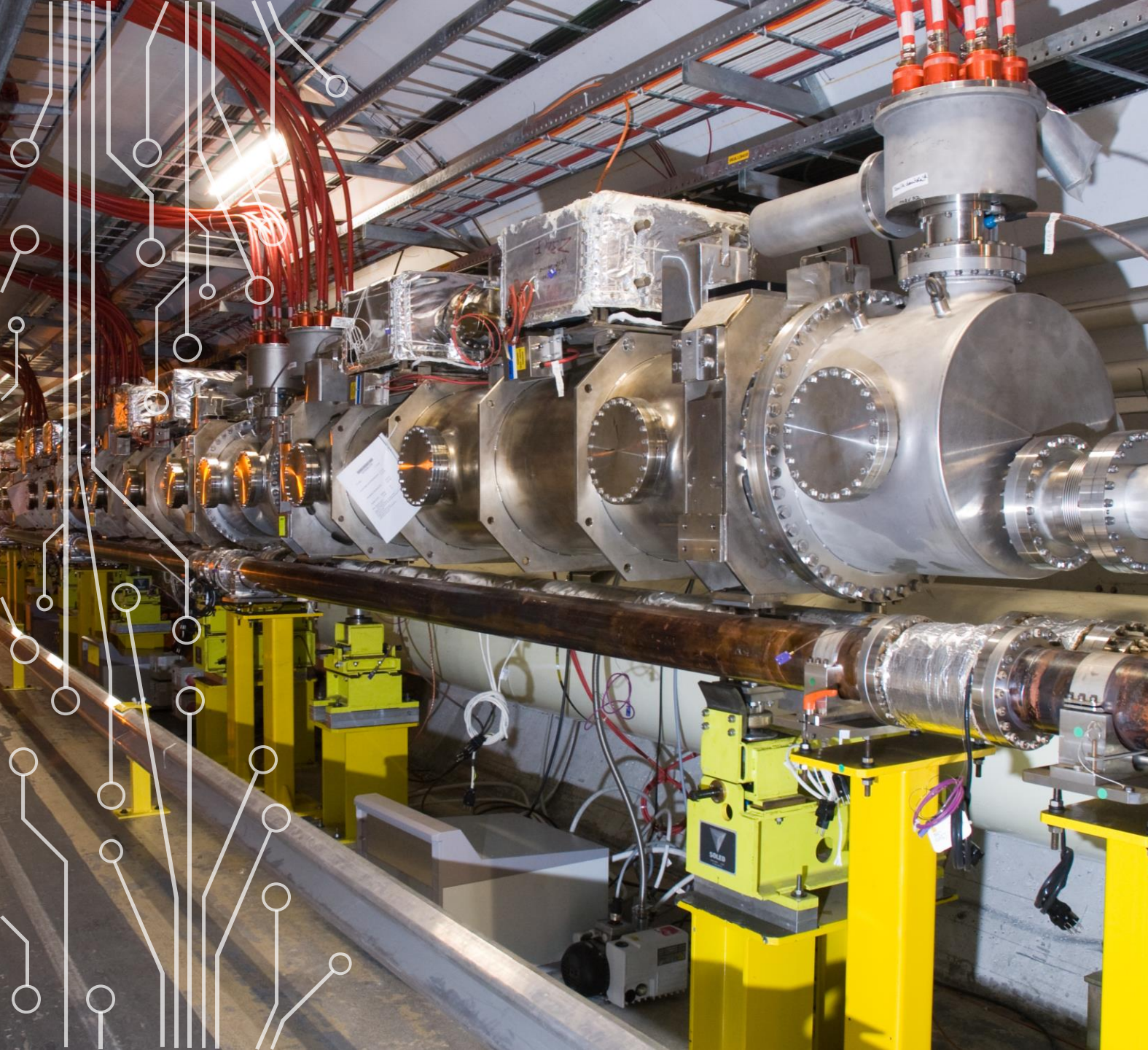
POWER TRIGGER MODULE



THE PULSE

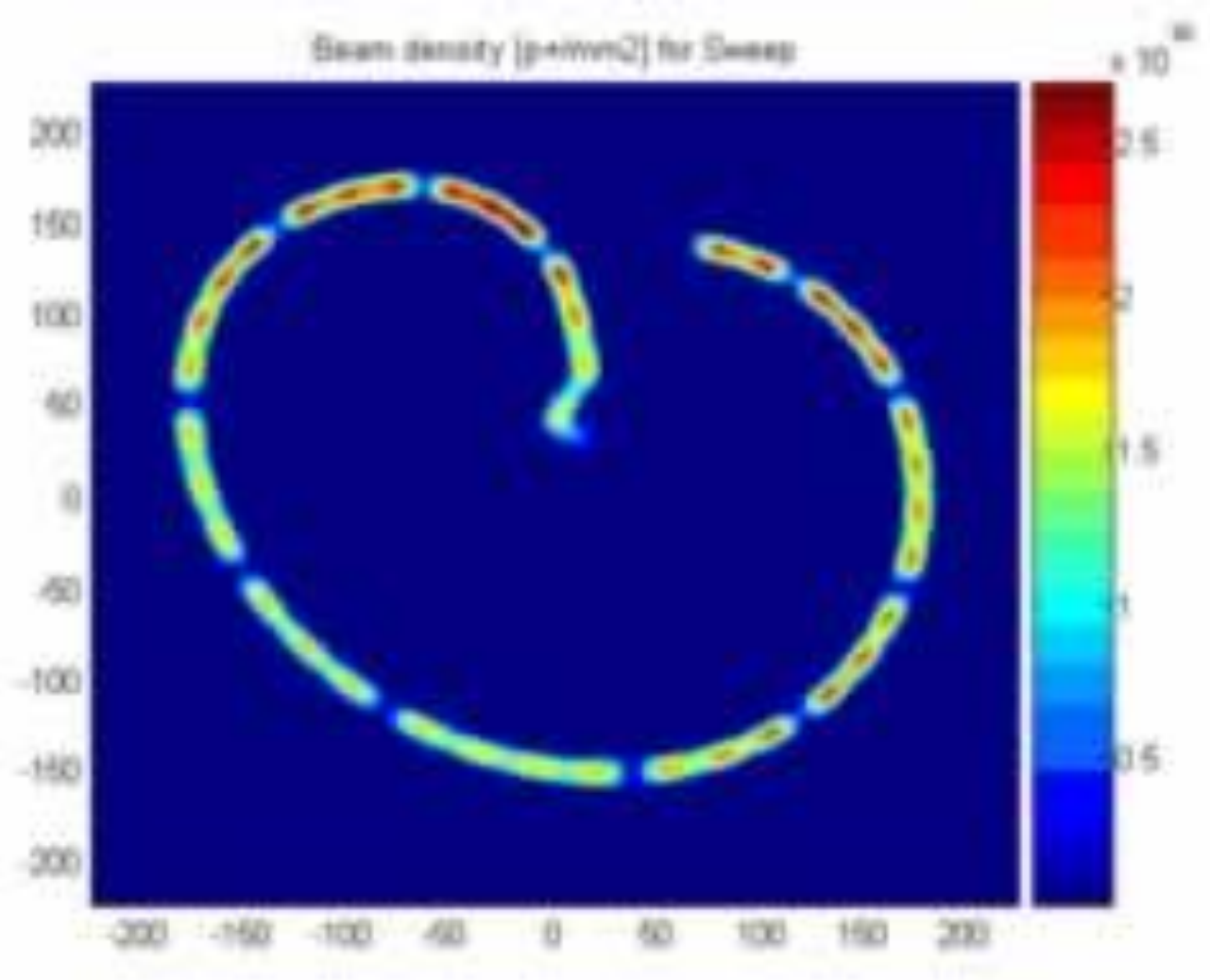
SEPTA





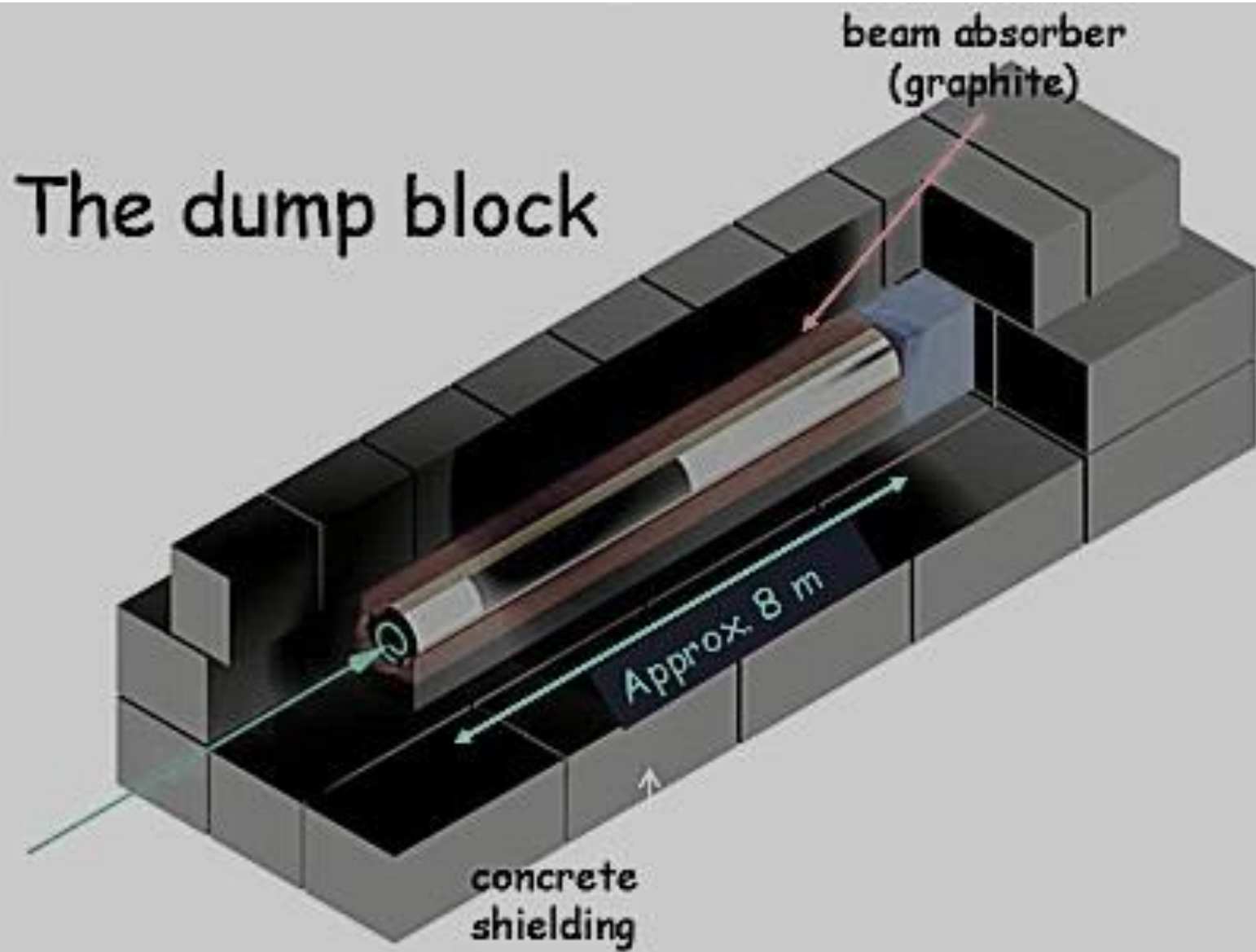
DILUTION MAGNETS

DILUTION

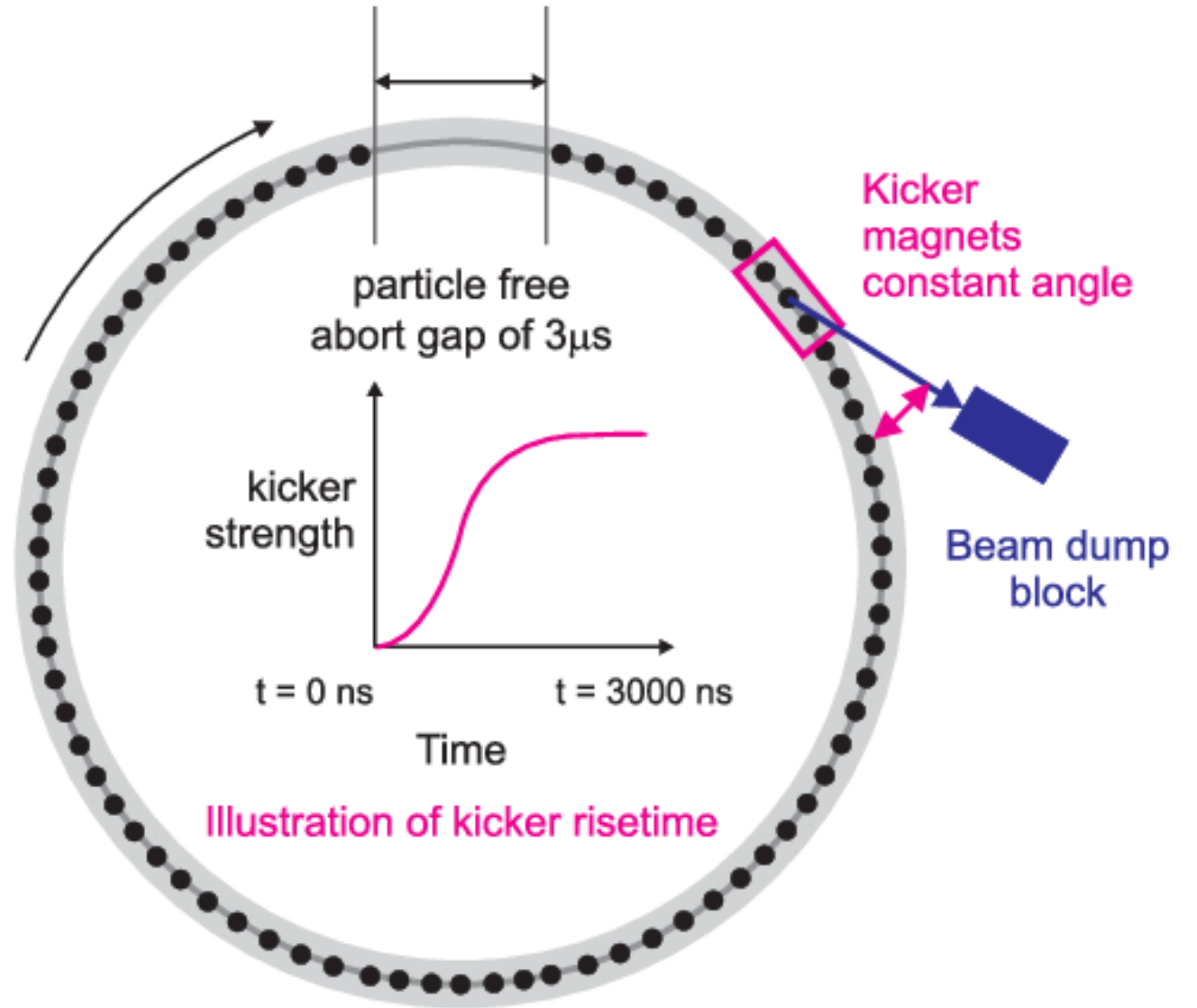




DUMPING BLOCK

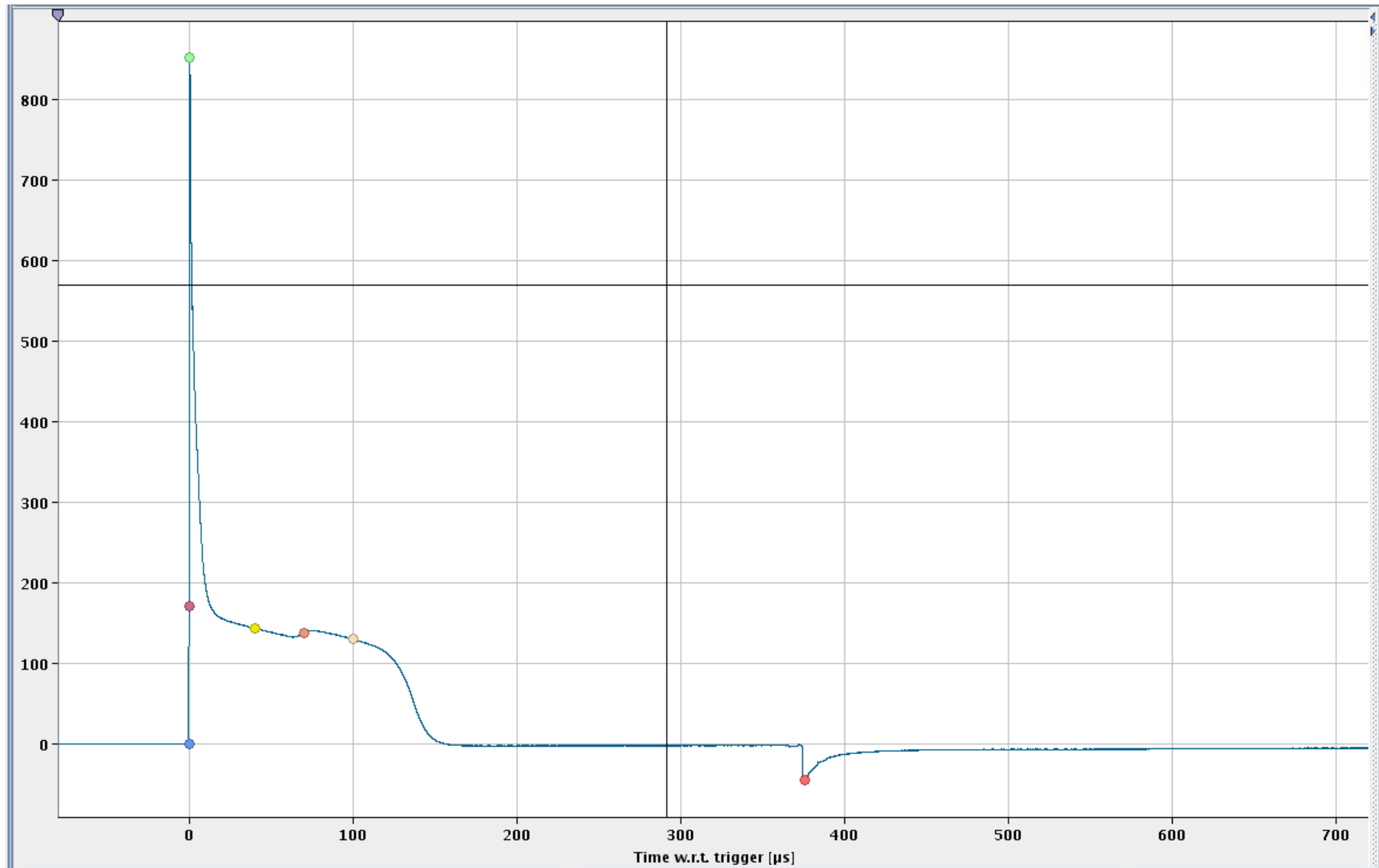


SUMMARY





WHAT DID WE DO?



INITIAL DATA

```
+-----+-----+-----+-----+
|variable          |member          |timestamp       |value          |
+-----+-----+-----+-----+
|MKD.UA67.IPOC.PTU2A.NB2|:I_MAX         |1633084105430842700|855.2116074809162|
|MKD.UA67.IPOC.PTU2A.NB2|:I_COMP_3     |1633084105430842700|131.51533911839846|
|MKD.UA67.IPOC.PTU1B.NB2|:I_COMP_1     |1633084105430842700|146.47908226672425|
|MKD.UA67.IPOC.PTU1A.NB2|:I_COMP_2     |1633084105430842700|143.3493112527615|
|MKD.UA67.IPOC.PTU1A.NB2|:I_COMP_1     |1633084105430842700|145.99263702512206|
|MKD.UA67.IPOC.PTU1A.NB2|:I_COMP_3     |1633084105430842700|132.49656167884535|
|MKD.UA67.IPOC.PTU1A.NB2|:I_MIN        |1633084105430842700|-4.3688393845121|
|MKD.UA67.IPOC.PTU1B.NB2|/Waveform#energy|1633084105430842700|449.7612609863281|
|MKD.UA67.IPOC.PTU1A.NB2|/Waveform#energy|1633084105430842700|449.7612609863281|
|MKD.UA67.IPOC.PTU1A.NB2|:I_MAX        |1633084105430842700|854.0371238647253|
|MKD.UA67.IPOC.PTU1B.NB2|:I_COMP_3     |1633084105430842700|133.00258114698883|
|MKD.UA67.IPOC.PTU2B.NB2|:I_MIN        |1633084105430842700|-1.6019694291596949|
|MKD.UA67.IPOC.PTU2B.NB2|/Waveform#energy|1633084105430842700|449.7612609863281|
|MKD.UA67.IPOC.PTU2B.NB2|:I_COMP_2     |1633084105430842700|135.48878472647021|
|MKD.UA67.IPOC.PTU1B.NB2|:I_MAX        |1633084105430842700|870.147044873198|
|MKD.UA67.IPOC.PTU1B.NB2|:I_MIN        |1633084105430842700|-5.951425288690672|
|MKD.UA67.IPOC.PTU2B.NB2|:I_COMP_1     |1633084105430842700|143.82994027498944|
|MKD.UA67.IPOC.PTU1B.NB2|:I_COMP_2     |1633084105430842700|137.7524740439086|
|MKD.UA67.IPOC.PTU2B.NB2|:I_MAX        |1633084105430842700|866.0883470475601|
|MKD.UA67.IPOC.PTU2B.NB2|:I_COMP_3     |1633084105430842700|131.48988302763155|
+-----+-----+-----+-----+
only showing top 20 rows

total 68400 rows
```


variable	energy	:I_COMP_1	:I_COMP_2	:I_COMP_3	:I_MAX	:I_MIN
MKD.UA67.IPOC.PTU2B.EB2	6999.78271484375	144.43897416195338	132.44479654455716	133.2568220470086	779.2848580690185	-2.9757686155866026
MKD.UA67.IPOC.PTU2B.EB2	499.9457702636719	143.66051258865977	134.80889552725856	130.4462400701564	816.2825675518379	-2.897795909536484
MKD.UA67.IPOC.PTU2B.EB2	1999.7830810546875	143.71400915375966	135.5192199460829	131.38764053323956	810.4434687165156	-3.0275750502167256
MKD.UA63.IPOC.PTU1A.HB1	6999.78271484375	144.6084621986445	133.28719574317597	131.36568186894525	838.511288854724	-2.5283580591955825
MKD.UA63.IPOC.PTU1A.HB1	799.9674682617188	145.12955530283477	140.52945153102863	130.84372852962304	859.8127796334998	-2.514051541928282
MKD.UA63.IPOC.PTU1A.HB1	5000.0	144.80065666244084	138.67775965711192	131.31009292002216	840.4558992704228	-2.44234070233378
MKD.UA63.IPOC.PTU1A.HB1	7099.88037109375	144.908403442462	133.30408928338738	131.43766051272846	838.7496796511509	-2.449666365090863
MKD.UA67.IPOC.PTU2B.EB2	1499.837158203125	143.74495029987196	135.44729019355975	130.96982765238715	812.0652007368876	-2.5918421836707353
MKD.UA63.IPOC.PTU1A.HB1	2249.891357421875	144.99343393225644	141.2104717465757	131.0012659186737	852.5286810733303	-3.582331850891933
MKD.UA67.IPOC.PTU2B.EB2	7249.8916015625	144.19214190757648	132.28510797572847	133.17290137732266	777.899065262006	-3.0113311617857477
MKD.UA63.IPOC.PTU1A.HB1	599.7720947265625	144.70766242947485	139.97758823860602	130.77572655851407	860.4490554918978	-2.1404306773181503
MKD.UA63.IPOC.PTU1A.HB1	999.8915405273438	144.6642411674244	140.13126798536484	130.72439108318903	858.6598680192042	-2.428017755709078
MKD.UA67.IPOC.PTU2B.EB2	2500.0	143.8988382307332	135.60917099655268	131.41165143375883	807.8182416199234	-2.931057750676615
MKD.UA63.IPOC.PTU1A.HB1	7249.8916015625	144.88951021788753	133.08625775211564	131.75367792627142	838.1421784729871	-2.4454685929597986
MKD.UA67.IPOC.PTU2B.EB2	2249.891357421875	144.01934891053386	135.86169561877978	131.52527451586133	809.1000557215805	-2.9995546514781637
MKD.UA67.IPOC.PTU2B.EB2	449.7612609863281	143.87182295740985	134.94733896734067	130.793527590424	816.4522407916545	-3.0861432037301455
MKD.UA63.IPOC.PTU1A.HB1	1250.0	144.8341456180764	140.8201974752242	130.96820903157393	857.3956600237635	-2.4585213458333754
MKD.UA67.IPOC.PTU2B.EB2	6499.83740234375	144.53509207471657	132.54135277152562	132.892355063845	780.0534742705818	-2.8820840065694284
MKD.UA67.IPOC.PTU2B.EB2	7249.8916015625	144.48644155230414	132.2331291335089	133.2616237508647	777.8398491085559	-2.7195670202798112
MKD.UA67.IPOC.PTU2B.EB2	7099.88037109375	144.28516709893125	132.34471129874248	133.25808179761424	778.2186817675084	-2.8277914249636638

only showing top 20 rows

total 11400 rows

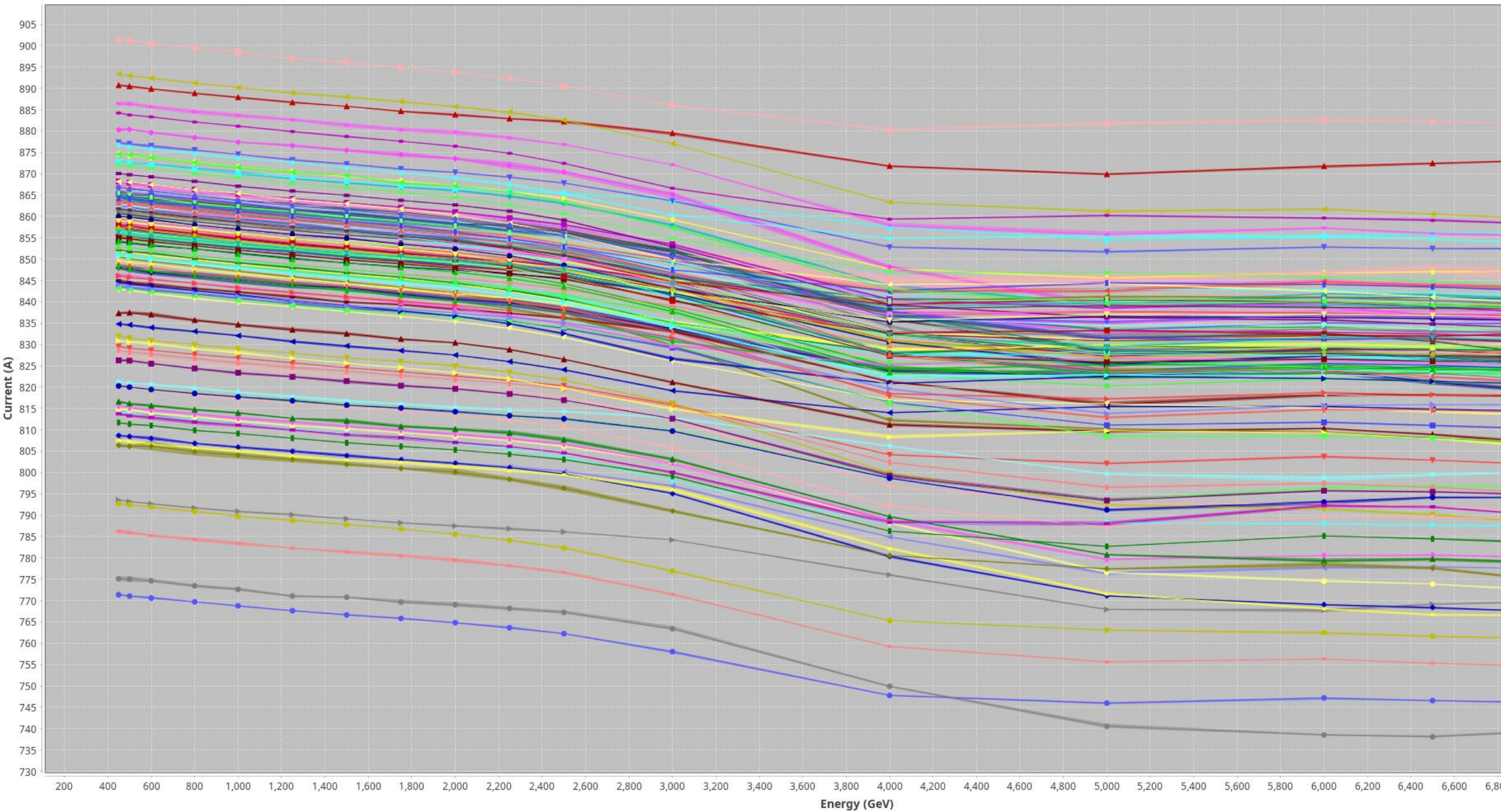
variable	energy	avg(:I_COMP_1)	min(:I_COMP_1)	max(:I_COMP_1)	avg(:I_COMP_2)	min(:I_COMP_2)	max(:I_COMP_2)	avg(:I_COMP_3)	min(:I_COMP_3)	max(:I_COMP_3)	avg(:I_MAX)	min(:I_MAX)	max(:I_MAX)
MKD.UA63.IPOC.PTU1A.AB1	449.7612609863281	144.83325924312268	144.59550001731753	145.0110542200925	135.20974707083695	135.00364505519767	135.36635219335585	131.4548496686088	131.33543987579534	131.580494304872	863.5578457926147	863.4036563790207	863.4036563790207
MKD.UA63.IPOC.PTU1A.AB1	499.9457702636719	144.81236568897435	144.59023682973543	145.05188868141616	135.22271317496876	134.95236976528994	135.52555212553227	131.49853369892662	131.37915927346856	131.57008603129378	863.1480248392105	862.9748204615676	863.1480248392105
MKD.UA63.IPOC.PTU1A.AB1	599.7720947265625	144.82090480178505	144.67212151185433	145.04124322102675	135.26987081905696	135.1532108315949	135.41340356999325	131.45033354718953	131.30354918682536	131.5298126814877	862.7077600790642	862.6336129333431	862.7077600790642
MKD.UA63.IPOC.PTU1A.AB1	799.9674682617188	144.92120867288054	144.86446800933413	144.9970784606449	135.37390175224343	135.02363131835082	135.58708119291546	131.53800645236853	131.426897795617	131.66359316889034	861.7077347345545	861.4588621377666	861.7077347345545
MKD.UA63.IPOC.PTU1A.AB1	999.8915405273438	144.81246826108753	144.73626908061655	144.95282262368298	135.47248216535468	135.28162503377115	135.78857695412472	131.51184708199625	131.39258064862045	131.60539234280955	860.5944054569293	860.4508117496971	860.5944054569293
MKD.UA63.IPOC.PTU1A.AB1	1250.0	144.82781972915308	144.63976123510457	144.95113077443955	135.58033394522982	135.45212090562836	135.79768045280244	131.48977596496678	131.42258313081362	131.5898985394581	859.4954153156356	859.3498296107871	859.4954153156356
MKD.UA63.IPOC.PTU1A.AB1	1499.837158203125	144.75433099751464	144.44175839492323	145.0145953647702	135.48884922475492	135.1470692383914	135.87602324514503	131.47648296873416	131.2464562352446	131.65907071598645	858.3335706189515	858.2398065156776	858.3335706189515
MKD.UA63.IPOC.PTU1A.AB1	1749.9456787109375	144.86752668096955	144.72827378783444	145.04682207530377	135.79943991319888	135.58829103980082	136.13402836974998	131.48065745382914	131.3713310632074	131.64927095408814	857.3062541913947	857.2540759264875	857.3062541913947
MKD.UA63.IPOC.PTU1A.AB1	1999.7830810546875	144.78385891124398	144.6151256482229	144.9470091111493	135.77179453835964	135.62922674051066	136.04717407258855	131.56593352290216	131.40103749373787	131.74807337145393	856.2917467716394	856.1098524930619	856.2917467716394
MKD.UA63.IPOC.PTU1A.AB1	2249.891357421875	144.83900871643863	144.69439119052453	144.93330850564405	135.827241865214	135.69517381130598	136.01160788764608	131.5722424031166	131.50580712766464	131.66300126906347	855.1140976172517	854.9770950176676	855.1140976172517
MKD.UA63.IPOC.PTU1A.AB1	2500.0	144.87145270192883	144.44075593611984	145.092473726959	135.9090528392063	135.3535522513029	136.13271997741367	131.5237335972617	131.17353994098312	131.70935722965348	853.4473666326	853.2660751334884	853.4473666326
MKD.UA63.IPOC.PTU1A.AB1	2999.94580078125	144.6988366168007	144.53332066523217	144.90937356029426	135.48322681988579	135.28995464914138	135.75473694082018	131.4065830855177	131.30464901255735	131.61586855037424	848.442259747352	848.1634173607965	848.442259747352
MKD.UA63.IPOC.PTU1A.AB1	3999.837158203125	144.5901881448247	144.46764503205839	144.713668417159	134.2268948023259	134.1239192473862	134.38782436629435	131.50047826755105	131.3615846432626	131.62832899504448	835.205412812708	835.0586804078679	835.205412812708
MKD.UA63.IPOC.PTU1A.AB1	5000.0	144.74245082226918	144.64915297068862	144.92279436610062	133.37745317849797	133.20764007179818	133.64988504032635	131.5437429550142	131.40690403031536	131.69107242758744	830.2059373305561	829.9968144032653	830.2059373305561
MKD.UA63.IPOC.PTU1A.AB1	5999.8916015625	144.7006532487581	144.40215399901783	144.9993205404161	132.1571229388349	131.79959326610796	132.46317697725772	131.59909639209653	131.49190079580566	131.7619634174322	831.0033661464926	830.8275357518193	831.0033661464926
MKD.UA63.IPOC.PTU1A.AB1	6499.83740234375	144.51075561872676	144.26519461461197	144.7190400295649	131.52839491919767	131.3559083312364	131.73106414285954	131.50320171330035	131.3302177344713	131.62779028033412	830.3786765981382	830.1980474035447	830.3786765981382
MKD.UA63.IPOC.PTU1A.AB1	6999.78271484375	144.45037993907016	144.17364440499924	144.81849641954466	131.24664251991334	131.0166900939507	131.43447658596696	131.4957434755824	131.3222255659451	131.8470182077004	829.3948831978485	829.2207561059513	829.3948831978485
MKD.UA63.IPOC.PTU1A.AB1	7099.88037109375	144.4345188036483	144.28707925342505	144.60268441115727	131.02647223232583	130.8974542853349	131.17176111794032	131.46358510660897	131.4273776614781	131.5259132044644	829.1123426278531	828.8749273212551	829.1123426278531
MKD.UA63.IPOC.PTU1A.AB1	7249.8916015625	144.5218722470744	144.142468650115	144.76907940974377	131.01663734534395	130.60663002178376	131.2363998076157	131.51433988096443	131.16613580948808	131.66683175486688	828.9531170864469	828.7663813413463	828.9531170864469
MKD.UA63.IPOC.PTU1A.BB1	449.7612609863281	146.48757368527498	146.32308096501245	146.66718966357044	144.80475037560285	144.68927522237263	145.07425233962462	133.33837076937326	133.146369542356	133.44782214346955	857.5952395833974	857.275128724717	857.5952395833974

only showing top 20 rows

total 2280 rows

energy	avg(:I_COMP_1)	min(:I_COMP_1)	max(:I_COMP_1)	avg(:I_COMP_2)	min(:I_COMP_2)	max(:I_COMP_2)	avg(:I_COMP_3)	min(:I_COMP_3)	max(:I_COMP_3)	avg(:I_MAX)	min(:I_MAX)	max(:I_MAX)	avg(:I_MIN)
449.7612609863281	144.25974395941253	130.17363123437553	149.82720484386977	138.69860845557258	124.4756724399126	147.30285326902276	130.91991242039603	120.77748549789912	134.8642007747522	850.4431364483205	771.0886715594754	901.4713373952741	-3.799071939
499.9457702636719	144.21995417393344	130.14278516116886	148.7954320690068	138.6854108871145	124.62199934155068	147.2486154772898	130.9000819086272	120.61338153124674	134.8484122507638	850.1606533864559	770.9607709887778	901.2348507690899	-3.798441524
599.7720947265625	144.24437330335752	130.10165126179047	149.43239998710902	138.79519405024232	124.50499775922894	147.45685758655716	130.94453942372323	120.68331580092493	134.91117764778005	849.5937188943401	770.377681633332	900.6575516649732	-3.783145872
799.9674682617188	144.22954728188085	130.3311203245477	150.30520664146715	138.8576157565861	124.7085584504394	147.65431773526925	130.98600072608883	120.70611304320124	134.9679387486581	848.5445304873742	769.6133914113504	899.6571859901094	-3.786492912
999.8915405273438	144.29543408418198	130.23558536590465	150.16458325737923	139.04857349716528	125.13454527948927	147.75219029813454	131.0709540130641	120.80111115715968	135.20604805815026	847.5599244801954	768.5380716073671	898.592317546475	-3.782045913
1250.0	144.32887249847718	130.1595892673052	149.87740267709526	139.23537797278817	125.28446028828722	147.7921056673292	131.15814647395177	120.62872038851691	134.9943567093873	846.3863087002078	767.4680874879575	897.1456218931523	-3.782017985
1499.837158203125	144.33603609246333	130.00250702559464	149.6655344718846	139.3611912566293	125.10298110120726	148.05468983951607	131.21324977076875	120.61794166760625	135.17449759855396	845.3692152162947	766.5055859349816	896.3181592510321	-3.790517867
1749.9456787109375	144.41758686400127	130.29676739512811	150.45962287820888	139.50782887190056	125.1266558506266	148.20588004693067	131.3416270317878	120.94533452981996	135.1524992749566	844.3415548679064	765.6434567815609	895.0276304968077	-3.778639417
1999.7830810546875	144.43498381245996	130.2119468004946	150.2952725108586	139.5186372713382	125.50554875762565	148.40712106090146	131.4225484090432	120.89429622990554	135.37076687080118	843.2698021865447	764.6440003916914	893.8629959066786	-3.786718116
2249.891357421875	144.48308607018487	130.20423908769664	150.1372369324854	139.4975255869902	125.50865531238408	148.2466521306259	131.51830065936326	120.84305746936008	135.25155146954873	841.9733646243909	763.3582017271792	892.5337138555003	-3.800794121
2500.0	144.4724005193517	130.06153102116437	149.6161926642829	139.3368564156447	125.12055995094691	148.34365350768954	131.5835670173576	120.8663077789061	135.48997254690087	840.2905016936994	762.1375454469496	890.5548513757144	-3.805156426
2999.94580078125	144.4928652906874	129.93076791298841	149.22118996575182	138.73339954834032	123.64651176920516	148.36725802096993	131.75939835270833	120.89724446234135	135.61433323577316	835.4912104995443	757.6415306634317	886.1594330453622	-3.855814126
3999.837158203125	144.56475446483978	130.0249460045545	150.5632886184484	137.54803018418275	121.78832989719467	147.88292033780337	132.07084401251896	120.91785283940466	135.9585274653254	824.3918919746459	747.6544317406522	880.5907773615127	-3.864596762
5000.0	144.73152142893622	130.1368505444726	149.0359856917065	136.79760803325533	120.2146764785911	147.70139828405237	132.48684084353417	121.23080945785377	136.6789672936521	821.7138880703961	740.1398491907139	882.1805139018179	-3.772375876
5999.8916015625	144.79598643938593	130.07424297048075	149.82471358312827	135.39111536272694	118.8219094396931	145.54320969250128	132.81619631621564	121.32480817695408	136.96011407701818	822.2282141727843	738.3763204178281	882.9237054158289	-3.767185769
6499.83740234375	144.82120032500907	129.88150686962595	150.08455177489367	134.71239912066372	118.53449652704944	145.0861382646083	132.96328623819437	121.27028029449103	137.04621459709955	821.7021545958568	737.901831196752	882.526059369136	-3.77328484
6999.78271484375	144.88204285508164	129.71771942515136	151.1974619788863	134.18765766520752	118.39673475387855	145.1985196634443	133.13958003651257	121.27514964732329	137.51153218929676	821.0361856354598	739.0772618714939	881.6483901296003	-3.747536557
7099.88037109375	144.86524732821866	129.84872913541898	150.0762246293431	134.05839018396875	118.21128675874779	144.9699864602965	133.15121698040953	121.30767402816748	137.4083139579022	820.9190007794954	739.394772151385	881.6329322604943	-3.759441639
7249.8916015625	144.90486090571184	129.90264667914713	150.1758574021266	133.925472730047	118.00470419818389	145.09018946284613	133.21948545278738	121.38682885840869	137.5012087089414	820.8120081971498	739.3059828843207	881.4531911329698	-3.757552283

:I_MAX (Individual)



IPOC Explorer

Help | nmagnin | Save all waveforms | Reset | Manual Trigger | Stop | Calibrate | Save all waveforms

Analyser Results | Waveforms | Analyser Limits | Analyser Parameters | Logging | Configuration | Info

Timestamp: 28.10.2021-17:17:24.021982550 | User: no-selector | Energy: 450.00 GeV

CHECK OK | ANALYSIS OK | NOT MASKED


Name	Value	Nominal	Tolerance	Units	Check
Threshold time	0.020047497680035095	0.0458396493430958	0.04660107237246272	µs	OK
Max current	853.6488244211262	836.6435392058454	197.48341601818674	A	OK
Compensation1 current	144.18965626708166	144.51476303671447	29.594087223126223	A	OK
Compensation2 current	138.59800397184594	137.67878383422968	39.34815927209158	A	OK
Compensation3 current	130.1129470556119	131.8245145313712	22.422266000248896	A	OK
Rise time	0.5849525028199689	0.6052261401391801	0.14718614244010264	µs	OK
Pulse length	0.0	400.0	500.0	µs	OK

Cursor position: -80.005 µs

Sel	Co...	Label	Cursor	Units
<input checked="" type="checkbox"/>		FilteredWavef...	0.030	A
<input checked="" type="checkbox"/>		Threshold cur...	NaN	A
<input checked="" type="checkbox"/>		Max current	NaN	A
<input checked="" type="checkbox"/>		Compensation...	NaN	A
<input checked="" type="checkbox"/>		Compensation...	NaN	A
<input checked="" type="checkbox"/>		Compensation...	NaN	A
<input checked="" type="checkbox"/>		Min threshold ...	NaN	A
<input checked="" type="checkbox"/>		Min current	NaN	A

Label	Value	Units
Offset	-1.9700831474423202	A
ScopeCard Temp	37.5	°C

17:17:59 - getAnalyserResultsProperty(0,propertyChanged0): DeviceName= 'MKD.867.IPOC.PTU1A.A', PropName= 'AnalyserResults', acqStamp= '1635434244021982550', sel= 'no-selector'.

A decorative graphic on the left side of the slide, consisting of white and light blue lines that resemble a circuit board or a tree structure. The lines are vertical and horizontal, with small circles at the ends, creating a complex, branching pattern.

THANK YOU FOR YOUR
ATTENTION