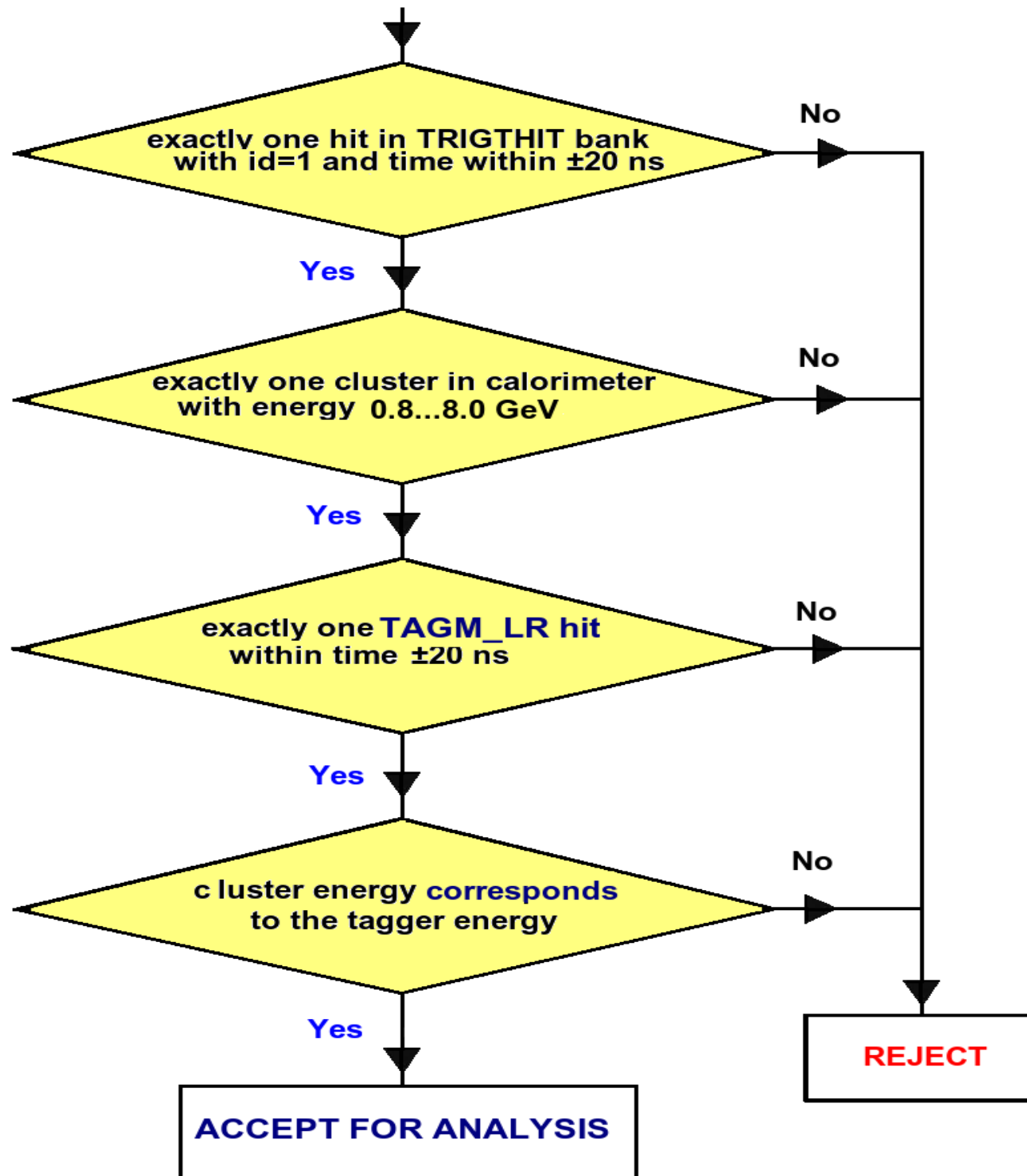


Trigger efficiency (HyCal signal)

- The main trigger for physics event record was “HyCal Totalsum”.
- If we have hit in TAGGER and corresponding cluster in HYCAL, trigger efficiency defines probability to have HyCal Totalsum trigger.
- For estimation of HyCal trigger efficiency, we used 2nd Snake Scan data.

Event selection



HyCal matrix (central part). Red arrows – “direction” of beam, yellow pointed boxes – no signal or low statistic.

5	G156	G157	G158	G159	G160	G161	G162	G163	G164	G165	G166	G167	G168	G169	G170	G171	G172	G173	G174		
	N	W	N	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	G175	
G186	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	G205
G216	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	G235
G246	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	G265
G276	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	G295
G306	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	G325
G336	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	G355
G366	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	G385
G396	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	G415
G426	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	G445
G456	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	G475
G486	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	G505
G516	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	G535
G546	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	G565
G576	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	G595
G606	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	G625
G636	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	G655
G666	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	G685
G696	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	G715
G726	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	
G736	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	
G746	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	
G756	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	
G766	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	
G776	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	
G786	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	
G796	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	
G806	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	
G816	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	
G826	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	
G836	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	
G846	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	
G856	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	
G866	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	
G876	G727	G728	G729	G730	G731	G732	G733	G734	G735	G736	G737	G738	G739	G740	G741	G742	G743	G744	G745	G746	G7

RUN #65126.dat
doesn't exist

RUN #65119-65122

Table with problem channels

Problem channels

Central id number	Description of problem
1571	reduced efficiency ~ 99.4%
1637	reduced efficiency ~70%
1690	Dead dynode

Channels with “shifted gains”.

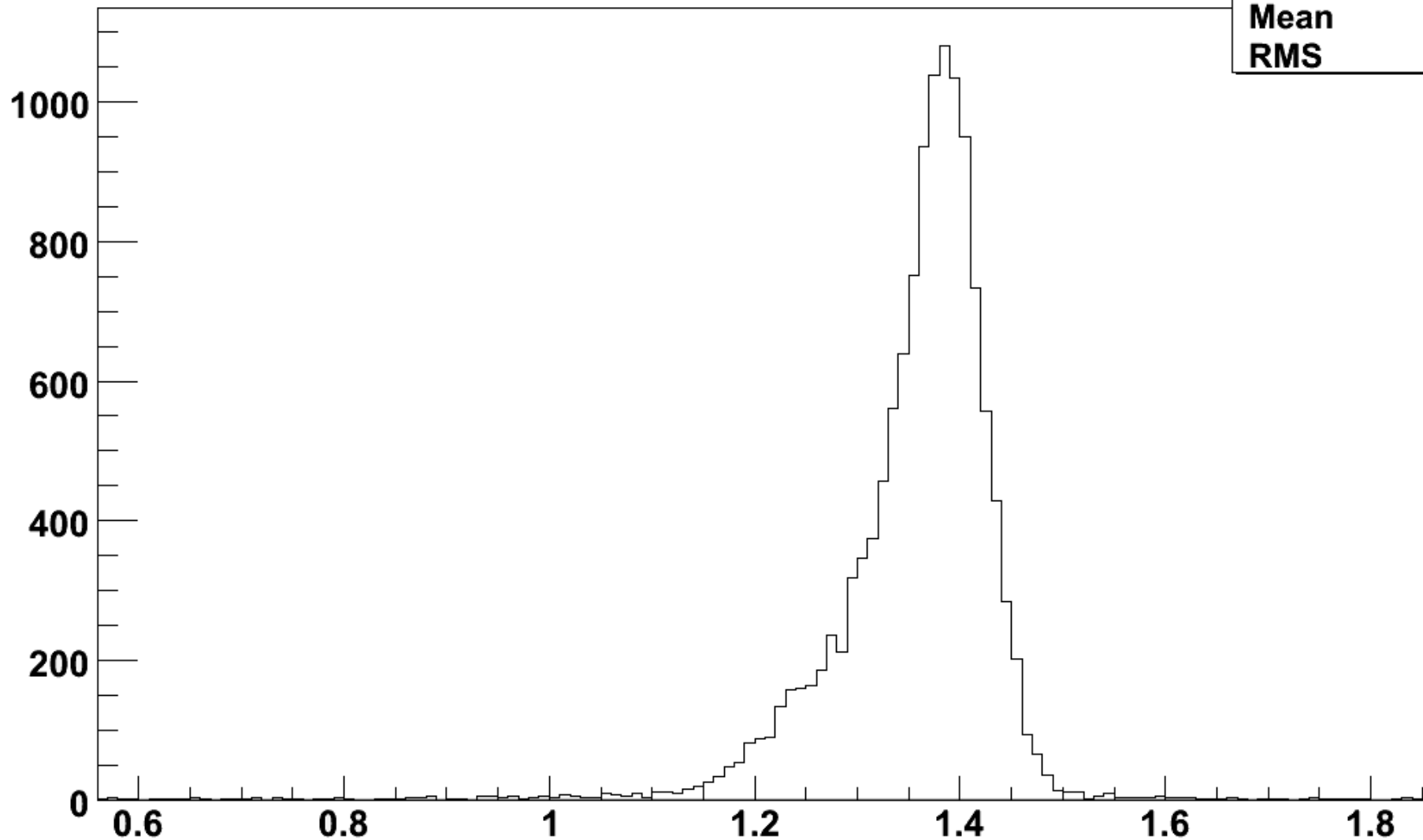
1521, 1525, 1527, 1528, 1563, 1594, 1629, 1630, 1631, 1731, 1821, 1857, 1858, 2132

Channels with low statistics

1526, 1630 (channels near central hole)
1335-1340 (should be in file primex2_065126.dat which missed)
1647, 1681-1684, 1715-1719 (should be in files in runs #65119-65122 which are mostly junk)

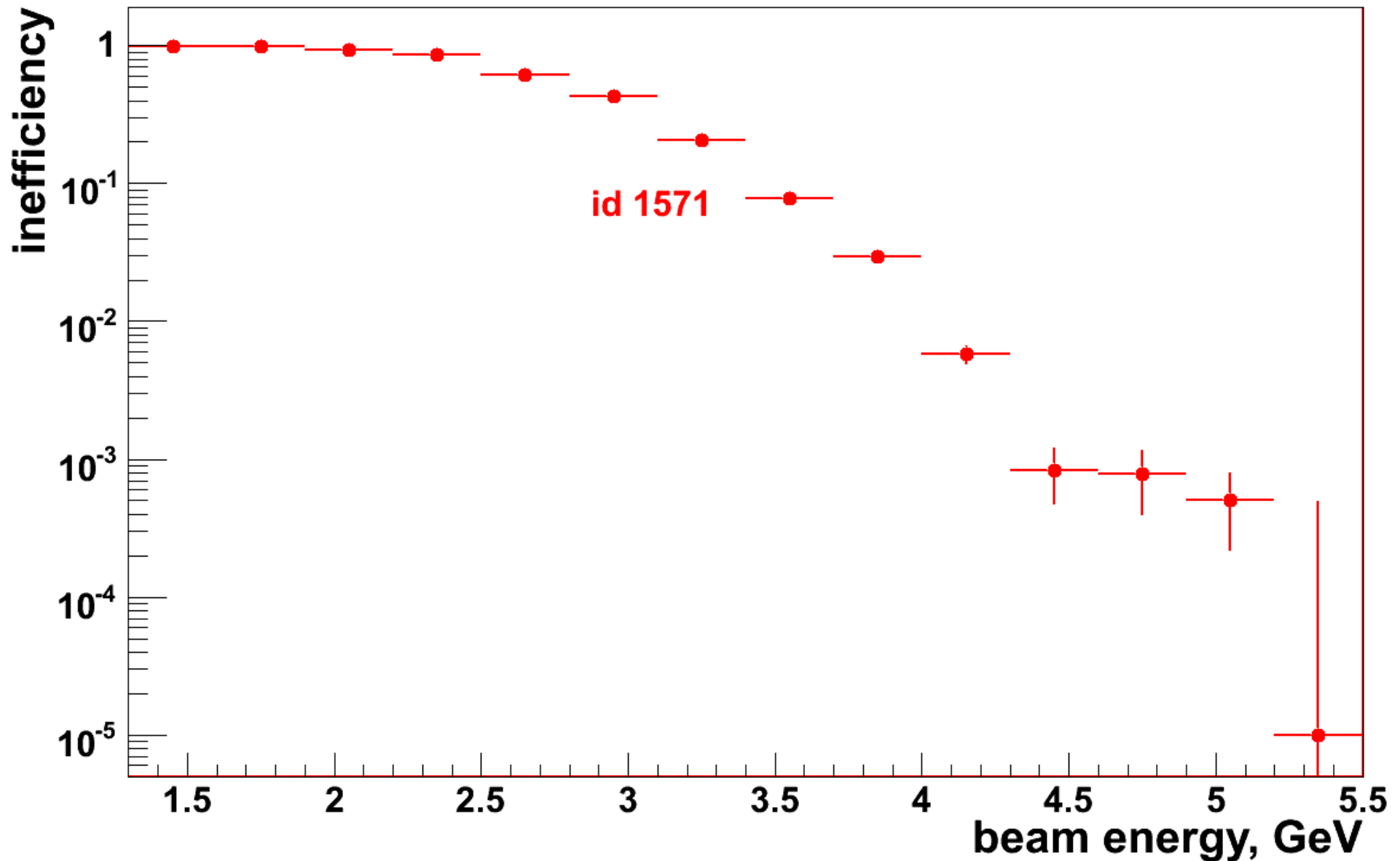
Example of channel with “shifted gain”. Channel #2132,
gain factor ~ 1.36 .
 E_{cl}/E_{tagger}

E_cl_DIV_ebeam2132

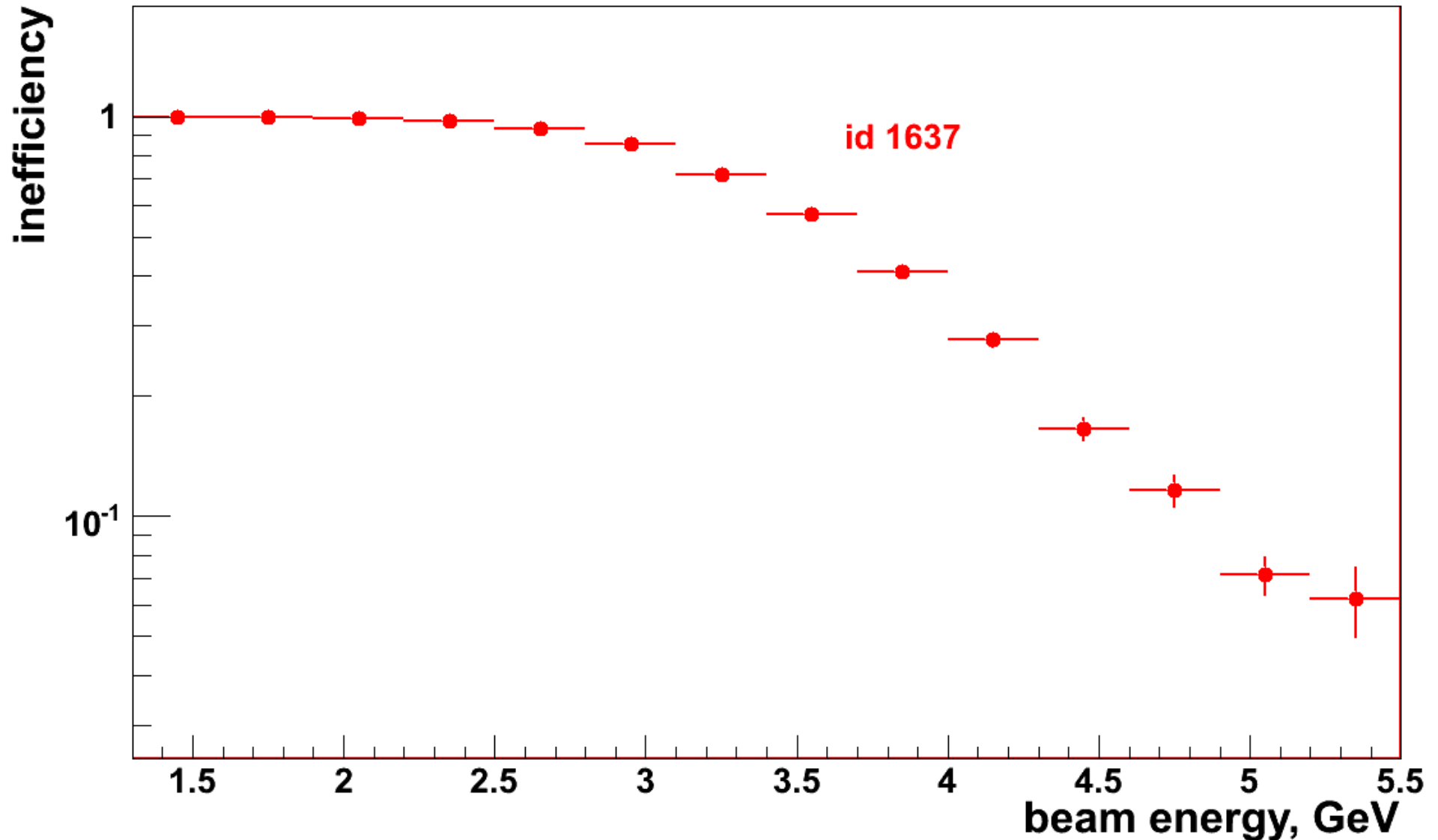


E_cl_DIV_ebeam_2132	
Entries	12968
Mean	1.356
RMS	0.08482

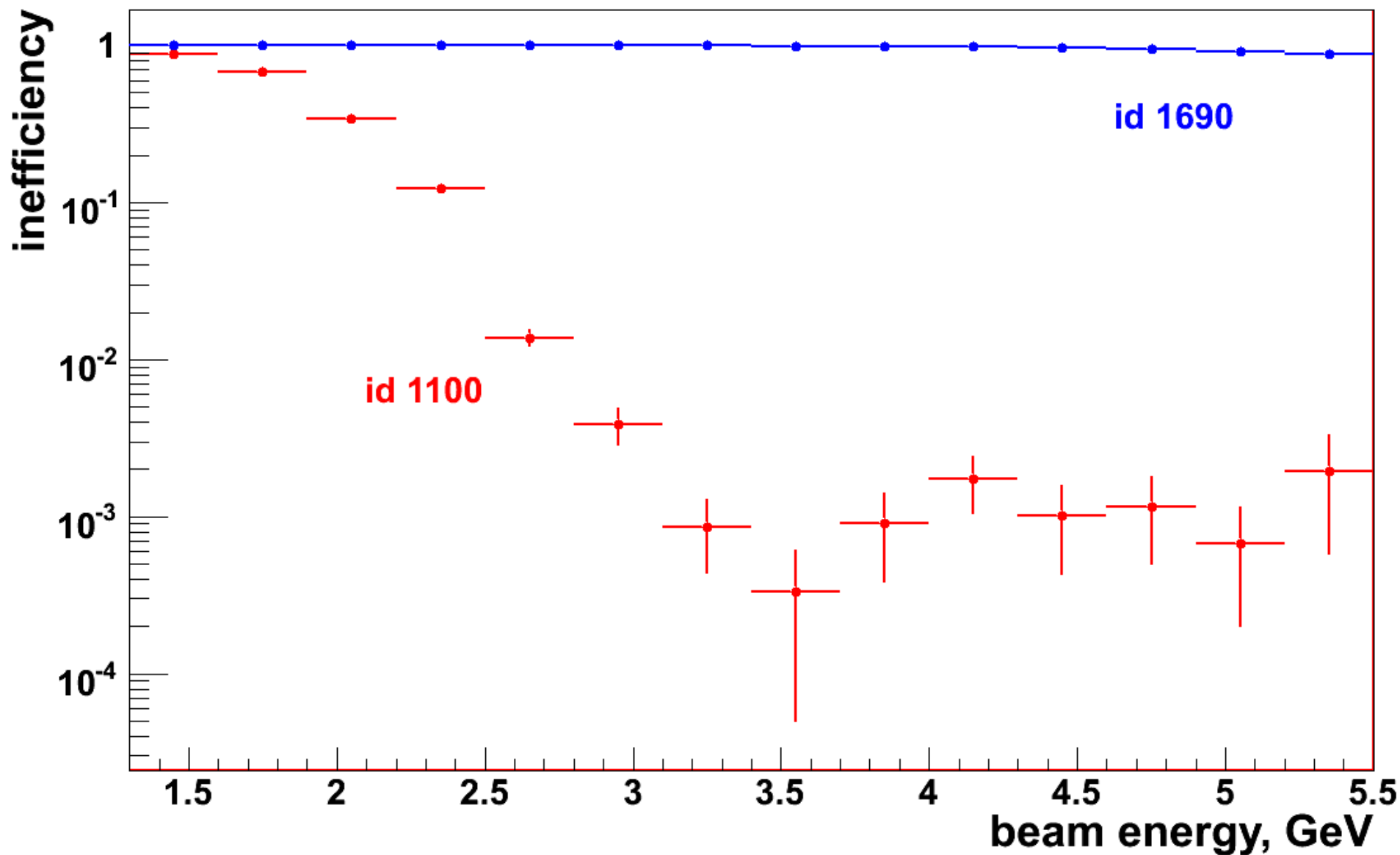
Inefficiency of HyCal trigger as a function of energy for **problem** channel #1571



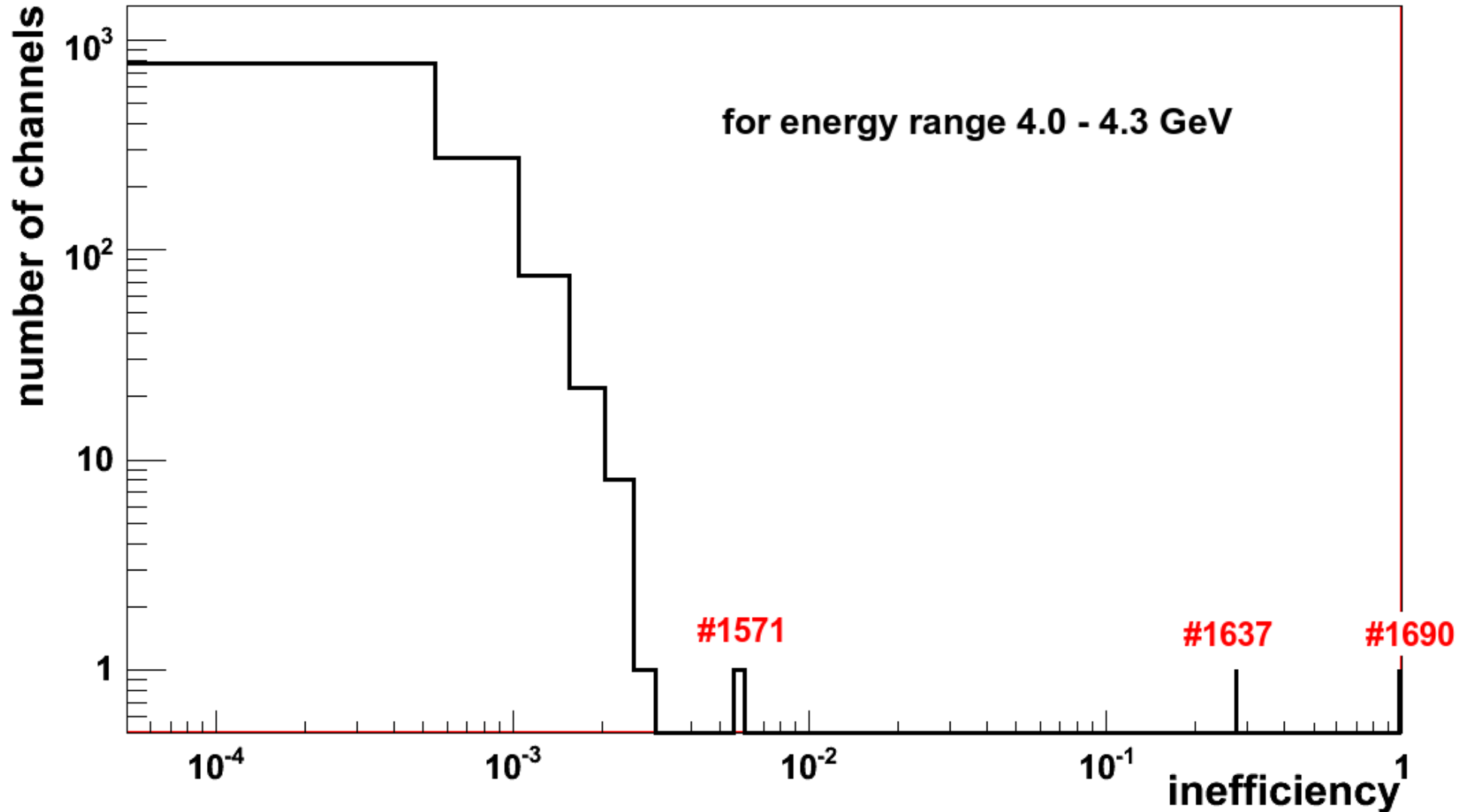
Inefficiency of HyCal trigger as a function of energy for **problem** channel #1637



Inefficiency of HyCal trigger as a function of energy for **problem** channel #1690 in compare with **good** channel #1100



Number of channels versus inefficiency for energy range 4.0-4.3 GeV



Timing, tid#1-19, time(TAGM_LR)-time(TRIGHIT) channel #1001

