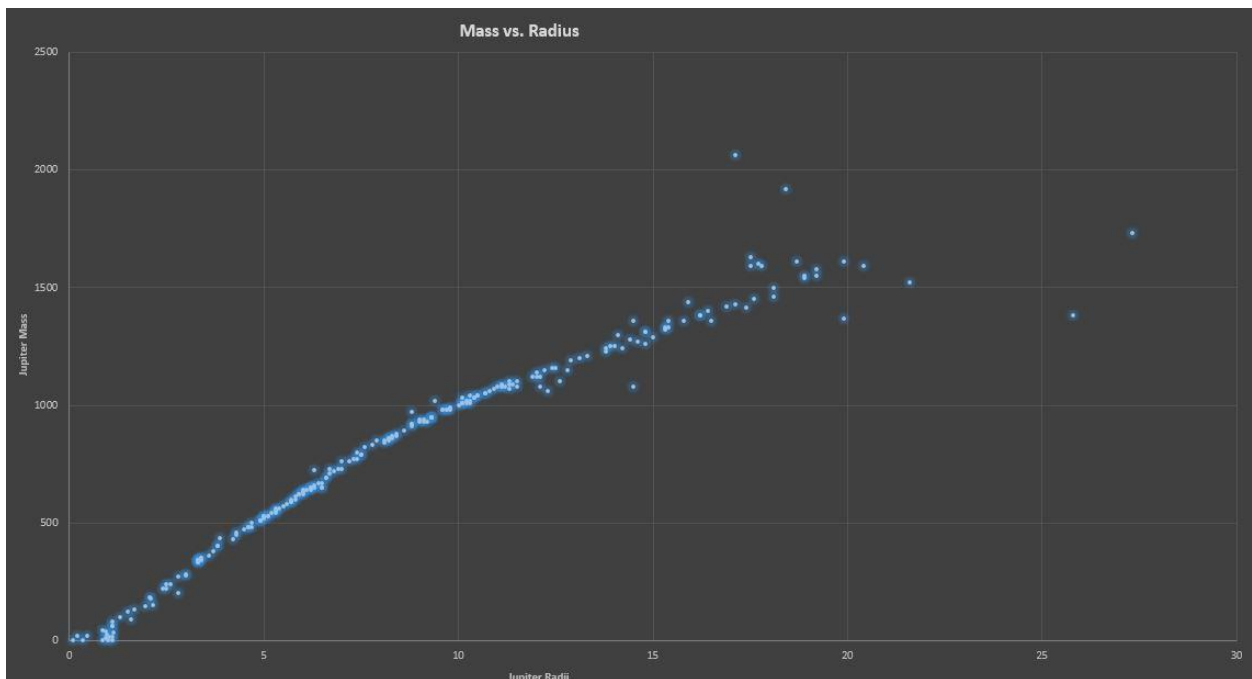


Island of Stellar Stability

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Abstract: It is presented a graph where the radii and mass of over 200 stars is presented as an island of evolutionary stability. Stars that are stable and evolve normally becoming "planets" fit on this island. The stars move towards the origin, (0,0). The idea for this is from the isotope island of stability, where elements are stable, versus where they can fly apart during radioactive decay.



The stars that are on this island evolve slowly and are stable. This means they do not fly apart (radioactively decay as per the analogy) into supernovas/novas. They cool and shrink over many billions of years into physically stable objects understood as "planets". The data for the graph is provided below:

Star	Radius/Jupiters	Mass/Jupiters
Earth	0.09	0.003
Neptune	0.346	0.054
Wasp 144 b	0.85	0.44

Jupiter	1	1
Kepler-419 b	1.11	2.71
HAT P 2 b	0.951	8.74
WISE 0458+6434 b	1.01	13
HN Peg b	1.1	16
WISE 1217+16 A b	0.96	22
NLTT 41135	1.13	33.7
EPIC 219388192 b	0.937	36.5
GJ 229 B	0.468	21
GJ 570 D	0.855	42.5
CoRoT 33 b	1.1	59.2
Wolf 359	1.6	90
CoRoT 15 b	1.12	63.4
GJ 1214	2.16	150
K2-28	2.8	201
TRAPPIST 1	1.1	80
Barnard's Star	1.96	144
K00204	14.5	1080
K04533	1.3	100
YZ Cet	1.68	130
K01075	18.1	1460
K07425	19.2	1550
K07436	19.9	1610
HATS 27	17.4	1415
Proxima Centauri	1.5	122
K01178	18.9	1540
K00705	19.2	1580
K04538	17.6	1450
K07206	16.5	1360
K07344	18.1	1500
K07367	17.1	1430
K07155	16.9	1420
K00200	14.8	1260
K01487	16.2	1380
K00206	16.2	1380
K07135	16.4	1400
Kepler 445	2.1	180

K04589	15	1290
K05108	15.8	1360
K01414	18.7	1610
K00246	12.3	1060
K07559	15.3	1320
K07019	15.4	1330
K04601	15.3	1330
K00158	14.6	1270
K00219	12.6	1100
K07602	14.2	1240
GJ 1132	2.07	181
Kepler 1649	2.5	220
K00208	15.4	1360
K00023	14.8	1310
K04578	14.8	1310
K00132	14.4	1280
K06942	13.8	1230
K00202	12.1	1080
K00225	14	1250
K00286	17.8	1590
K00209	12.8	1150
K07440	13.8	1240
K00233	13.9	1250
K07059	17.7	1600
K01474	15.9	1440
K07290	17.5	1590
K07093	13.3	1210
Kapteyn's Star	3	274
K00244	13.1	1200
Kepler 42	2.4	220
Kepler 1104	14.1	1300
K06335	12.9	1190
Kepler 1646	2.6	240
K00238	12.1	1120
K07272	12.5	1160
K07190	17.5	1630
K07040	12	1120
K04290	3	280
K04975	12.4	1160
HAT P 34	14.5	1360
K00232	11.5	1080

K00224	11.9	1120
K00240	12.2	1150
Kepler 57 b	0.2	18.86
K07005	11.3	1070
K00212	12	1140
K00187	11.4	1090
K00024	11.5	1100
K05327	2.5	240
K05662	2.8	270
K00199	11.2	1080
K07209	11.3	1090
K07289	11.1	1080
K00193	11.1	1080
K07258	11.3	1100
K00220	10.3	1010
K07003	10.7	1050
K00230	10.7	1050
K07392	10.8	1060
K00194	10.9	1070
K00211	11	1080
K00229	11.1	1090
K06881	10.2	1010
K00237	10.3	1020
K06766	10.4	1030
K00239	10.4	1030
K06757	10.5	1040
K00192	10.5	1040
K00213	9.8	980
Sun	10	1000
K00249	3.3	330
K00326	6.5	650
K03138	3.6	360
K06786	10.1	1010
K06839	3.4	340
K06880	10.1	1010
K00210	10.2	1020
K00242	10.1	1010
K00249	3.3	330
K00326	6.5	650
K00201	10.3	1040
K00214	9.8	990

K03389	9.7	980
K00196	9.7	980
K00236	9.2	930
K00812	5.3	540
K00203	10.1	1030
K03085	9.6	980
K00234	9.6	980
K06705	4.7	480
K06918	9.3	950
K03609	9.3	950
K06750	9.3	950
K00215	9.3	950
K00195	9.1	930
K02704	4.2	430
K01422	3.7	380
K02156	3.4	350
K03119	3.4	350
Kepler 560	3.3	340
K00463	3.3	340
K00463	3.3	340
K00641	6.5	670
K00430	6.3	650
K06799	6.2	640
K00205	9.1	940
K00190	9	930
K00250	6	620
K00191	8.8	910
K02873	5.8	600
K00604	8.6	890
K04252	5.7	590
K00784	5.7	590
K03932	8.4	870
K00247	5.6	580
K00221	8.3	860
K06910	5.5	570
K06716	8.2	850
K00252	5.4	560
K00188	8.1	840
K02793	5.3	550
K04087	5.3	550
K04427	5.2	540

K00251	5.1	530
K00854	5.1	530
K03094	5	520
K06904	7.4	770
K00781	4.9	510
K02006	4.9	510
K06444	4.9	510
K00218	7	730
K06893	4.6	480
K00886	4.6	480
K01334	9	940
K04472	4.5	470
K00815	8.8	920
K02874	8.8	920
K07034	6.6	690
K03920	6.6	690
K02685	4.3	450
K00503	6.4	670
K07009	8.4	880
K00736	6.3	660
K00235	8.3	870
K00455	6.2	650
K00455	6.2	650
K00531	6.2	650
K00223	8.2	860
K00226	8.2	860
K00610	6.1	640
K00216	8.1	850
K00248	6	630
K00739	6	630
K00227	5.9	620
K00227	5.9	620
K03712	5.8	610
K00778	5.7	600
Kepler 249	3.8	400
K00889	3.8	400
K04733	7.5	790
K00189	7.5	790
K04746	7.3	770
K04795	7.2	760
K00314	5.3	560

K00588	6.9	730
K00222	6.8	720
K02811	6.7	710
K02983	5	530
K00818	5	530
K04928	4.7	500
K00245	7.8	830
K00253	6	640
K03144	4.3	460
K00612	7.9	850
K00197	7.6	820
K00082	7.4	800
K00198	9.4	1020
K00231	7	760
K00241	6.7	730
K00217	8.8	970
K2-14	3.86	433
Sirius A	17.11	2063
Fomalhaut	18.4	1920
TW Piscis Austrini	6.3	725
K00075	25.8	1380
K00076	18.9	1550
K00089	20.4	1590
K00097	19.9	1370
K00098	21.6	1520
K00100	27.3	1730