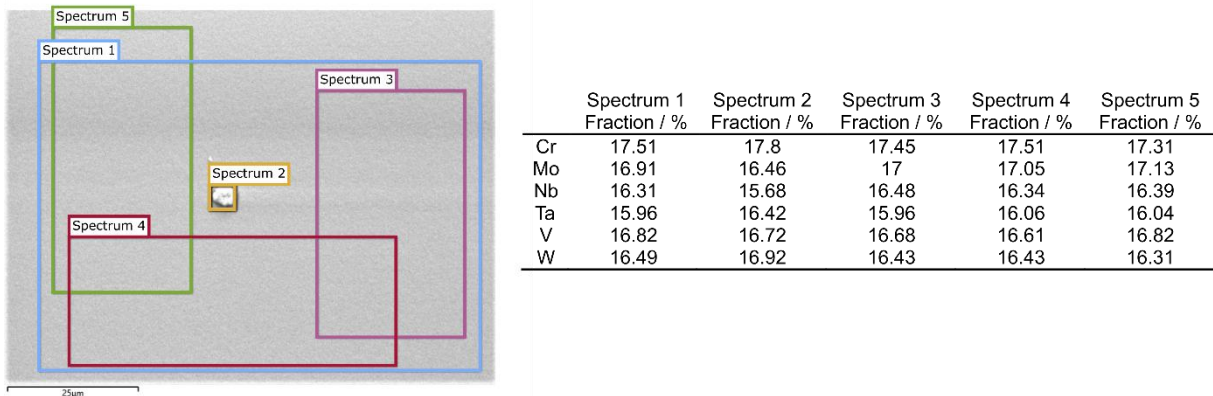
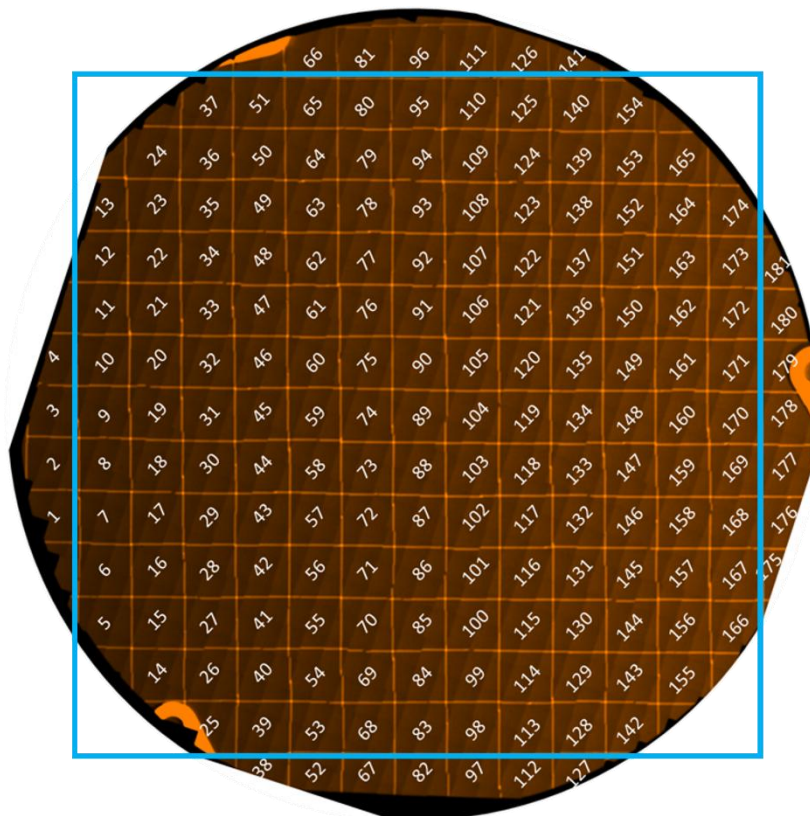


# Supplementary Materials

Synthesis and characterization of high-entropy CrMoNbTaVW thin films using high-throughput methods



**Figure S1.** SEM-EDS elemental mapping of CrMoNbTaVW-1 in five different areas (Spectrum 1 to 5).



**Figure S2.** Numbered Si Wafer for chemical composition and crystal structure evaluation. XRD data were obtained in each square within the blue frame.

**Table S1.** Chemical composition and crystal structure parameters grain size = GS and lattice parameter = LP) for the 106 samples. The assignment of the samples corresponds to the numbering in **Figure 2**.

Sample	Chemical concentration / at. %						GS/ nm	LP / Å
	Cr	Mo	Nb	Ta	V	W		
1	13.87	23.74	17.31	14.26	17.19	13.63		
2	13.84	23.55	17.81	14.04	16.62	14.14		
3	13.89	23.18	18.41	13.82	16.11	14.59		
4	13.99	22.67	18.94	13.69	15.47	15.24		
5	13.95	23.37	15.96	15.14	18.61	12.97	9.982	3.164
6	14.01	23.1	16.47	14.96	18.02	13.43	10.255	3.166
7	14.13	22.9	16.97	14.68	17.39	13.93	10.309	3.168
8	14.17	22.64	17.58	14.43	16.75	14.43	10.521	3.170
9	14.27	22.28	18.14	14.27	16.04	14.99	10.369	3.172
10	14.3	21.97	18.69	13.97	15.5	15.57	10.870	3.173
11	14.34	21.71	19.41	13.74	14.85	15.96	10.839	3.175
12	14.36	21.25	20	13.45	14.3	16.64	10.310	3.176
13	14.51	20.68	20.6	13.19	13.8	17.22	10.493	3.177
14	14.23	22.44	15.21	15.94	19.41	12.77	9.835	10.689
15	14.37	22.33	15.63	15.66	18.76	13.25	10.493	10.160
16	14.38	22.22	16.28	15.35	18.07	13.7	10.153	11.609
17	14.48	21.93	16.68	15.21	17.4	14.29	10.221	12.666
18	14.55	21.69	17.28	14.85	16.8	14.82	10.393	11.276
19	14.55	21.35	17.83	14.75	16.1	15.42	10.836	13.379
20	14.63	20.99	18.52	14.37	15.52	15.97	10.417	12.367
21	14.69	20.78	19.14	14.05	14.93	16.42	10.686	12.830
22	14.71	20.35	19.77	13.77	14.41	16.99		
23	14.72	20	20.33	13.52	13.83	17.59	10.735	12.739
24	14.73	19.61	21.05	13.21	13.33	18.08	10.501	12.921
25	14.61	20.82	14.49	16.97	20.29	12.82	9.554	3.167
26	14.53	21.56	14.94	16.45	19.58	12.94	9.769	3.163
27	14.63	21.4	15.41	16.13	18.95	13.48	10.004	3.165
28	14.74	21.29	15.93	15.8	18.23	14.01	10.411	3.167

29	14.83	21.02	16.51	15.65	17.41	14.58	10.431	3.168
30	14.87	20.76	17.02	15.42	16.86	15.08	10.469	3.169
31	14.95	20.51	17.59	15.11	16.18	15.67	10.716	3.171
32	14.98	20.26	18.19	14.77	15.59	16.21	10.486	3.172
33	14.93	19.92	18.75	14.53	14.98	16.91	10.509	3.173
34	15.05	19.54	19.35	14.16	14.43	17.48	10.803	3.174
35	15.08	19.12	20.02	13.84	13.85	18.08	11.028	3.175
36	15.06	18.91	20.65	13.59	13.31	18.48	10.744	3.177
37	15.03	18.49	21.17	13.33	12.84	19.13	10.301	3.180
38	14.66	20.81	13.97	17.18	21.12	12.25		
39	14.76	20.76	14.2	17.14	20.5	12.64	9.987	3.162
40	14.83	20.7	14.68	16.93	19.65	13.22	9.941	3.164
41	14.98	20.54	15.19	16.62	18.9	13.76	9.818	3.166
42	15.08	20.35	15.68	16.41	18.19	14.28	10.136	3.167
43	15.16	20.07	16.18	16.11	17.59	14.89	10.233	3.169
44	15.25	19.89	16.72	15.79	16.87	15.48	10.324	3.169
45	15.26	19.6	17.23	15.63	16.2	16.08	10.342	3.171
46	15.37	19.33	17.9	15.16	15.63	16.61	10.423	3.172
47	15.46	18.97	18.4	14.96	15.03	17.17	10.607	3.174
48	15.36	18.78	19.03	14.57	14.46	17.8	10.647	3.175
49	15.46	18.4	19.66	14.24	13.88	18.35	11.072	3.176
50	15.48	18.02	20.31	13.88	13.33	18.97	10.648	3.177
51	15.43	17.73	20.78	13.67	12.81	19.58	10.726	3.178
52	14.98	19.81	13.61	17.83	21.37	12.4		
53	15.05	19.84	13.95	17.77	20.51	12.89	9.879	3.162
54	15.17	19.72	14.41	17.49	19.86	13.36	9.875	3.165
55	15.32	19.64	14.98	17.08	19.04	13.93	10.160	3.166
56	15.39	19.46	15.4	16.91	18.36	14.47	10.019	3.167
57	15.57	19.19	15.9	16.57	17.63	15.14	10.122	3.168
58	15.62	19.08	16.38	16.31	16.97	15.64	10.286	3.169
59	15.65	18.79	16.9	15.97	16.29	16.38	10.527	3.171
60	15.75	18.49	17.48	15.64	15.66	16.99	10.686	3.172
61	15.73	18.29	18.04	15.27	15.12	17.56	10.656	3.173
62	15.76	18	18.6	14.99	14.47	18.18	10.627	3.174

63	15.81	17.62	19.16	14.68	13.91	18.82	10.488	3.176
64	15.83	17.31	19.9	14.21	13.37	19.37	10.942	3.177
65	15.8	16.92	20.54	13.87	12.81	20.05	10.859	3.178
66	15.84	16.56	21.04	13.57	12.34	20.64		
67	15.26	19.05	13.27	18.5	21.44	12.48		
68	15.35	19.01	13.69	18.27	20.64	13.03	9.973	3.163
69	15.52	18.87	14.13	17.98	19.9	13.6	10.104	3.165
70	15.68	18.69	14.62	17.73	19.04	14.23	10.000	3.166
71	15.79	18.58	15.1	17.41	18.41	14.7	10.203	3.168
72	15.91	18.43	15.57	17.05	17.64	15.41	10.260	3.169
73	15.94	18.22	16.08	16.8	17.05	15.9	10.403	3.170
74	16.08	17.99	16.56	16.44	16.39	16.54	10.627	3.171
75	16.21	17.72	17.1	16.13	15.77	17.07	10.671	3.172
76	16.13	17.52	17.68	15.69	15.17	17.81	10.546	3.173
77	16.19	17.24	18.33	15.31	14.54	18.39	10.773	3.175
78	16.17	16.93	18.8	15.04	14	19.06	11.014	3.175
79	16.17	16.58	19.41	14.61	13.42	19.8	10.736	3.177
80	16.14	16.27	20.11	14.19	12.9	20.38	10.847	3.177
81	16.15	15.99	20.6	13.9	12.44	20.92		
82	15.55	18.19	13.1	19.06	21.34	12.75		
83	15.74	18.05	13.46	18.87	20.62	13.25	9.824	3.163
84	15.88	18.07	13.87	18.54	19.85	13.8	9.966	3.165
85	15.98	17.99	14.31	18.25	19.08	14.38	10.130	3.166
86	16.15	17.73	14.76	17.95	18.42	14.99	10.180	3.168
87	16.24	17.62	15.32	17.49	17.77	15.56	10.212	3.169
88	16.45	17.44	15.72	17.21	16.97	16.2	10.256	3.170
89	16.45	17.25	16.28	16.81	16.42	16.79	10.527	3.171
90	16.51	16.98	16.75	16.53	15.76	17.45	10.797	3.172
91	16.6	16.72	17.31	16.12	15.11	18.13	10.631	3.173
92	16.6	16.43	17.91	15.73	14.58	18.77	10.794	3.174
93	16.64	16.21	18.34	15.4	13.98	19.43	10.635	3.175
94	16.61	15.93	18.96	14.93	13.47	20.09	10.920	3.176
95	16.67	15.59	19.52	14.6	12.9	20.72	10.741	3.178
96	16.56	15.29	20.19	14.14	12.43	21.39		

97	15.84	17.44	12.76	19.69	21.41	12.86		
98	16.06	17.31	13.2	19.4	20.66	13.36	9.958	3.163
99	16.2	17.29	13.59	19.09	19.88	13.94	9.772	3.164
100	16.35	17.11	14.12	18.75	19.13	14.55	10.106	3.166
101	16.42	16.97	14.46	18.43	18.54	15.17	10.004	3.167
102	16.59	16.87	14.94	18.05	17.75	15.79	10.449	3.169
103	16.8	16.71	15.39	17.62	17.08	16.41	10.291	3.169
104	16.85	16.47	15.91	17.29	16.46	17.02	10.509	3.170
105	16.96	16.3	16.43	16.82	15.8	17.68	10.592	3.172
106	16.99	16.01	16.88	16.57	15.16	18.39	10.772	3.173
107	17.07	15.8	17.46	16.05	14.63	18.99	10.853	3.174
108	17.05	15.49	17.92	15.74	14.03	19.77	11.039	3.175
109	17.02	15.19	18.55	15.3	13.56	20.37	10.963	3.176
110	17.02	15	19.21	14.89	12.89	20.99	10.920	3.177
111	17.01	14.66	19.64	14.51	12.43	21.75		
112	16.2	16.6	12.48	20.23	21.59	12.9		
113	16.38	16.62	12.84	19.94	20.69	13.52	9.847	3.163
114	16.53	16.62	13.37	19.57	19.94	13.97	9.959	3.165
115	16.65	16.39	13.74	19.36	19.18	14.69	10.087	3.166
116	16.86	16.27	14.19	18.91	18.47	15.31	10.057	3.168
117	17.01	16.14	14.61	18.51	17.75	15.98	10.192	3.169
118	17.15	15.98	15.06	18.13	17.13	16.56	10.529	3.170
119	17.26	15.81	15.53	17.74	16.43	17.22	10.462	3.171
120	17.34	15.58	16.09	17.25	15.84	17.88	10.643	3.171
121	17.36	15.4	16.55	16.85	15.24	18.59	10.831	3.172
122	17.43	15.15	17	16.52	14.62	19.27	10.831	3.173
123	17.51	14.91	17.55	16.06	14.06	19.91	11.252	3.174
124	17.49	14.64	18.15	15.66	13.47	20.59	10.947	3.175
125	17.52	14.29	18.65	15.19	12.97	21.38	10.844	3.176
126	17.52	14.13	19.17	14.74	12.49	21.95		
127	16.49	16.03	12.35	20.72	21.35	13.06		
128	16.71	15.82	12.58	20.57	20.77	13.54	9.920	3.164
129	16.91	15.8	13.01	20.15	20.01	14.13	9.961	3.165
130	17.06	15.72	13.42	19.82	19.2	14.78	9.894	3.167

131	17.27	15.57	13.87	19.42	18.45	15.42	10.031	3.168
132	17.45	15.46	14.27	19.04	17.78	16	10.054	3.169
133	17.58	15.32	14.71	18.57	17.13	16.68	10.340	3.170
134	17.72	15.13	15.1	18.21	16.46	17.39	10.372	3.171
135	17.78	14.96	15.66	17.72	15.83	18.04	10.718	3.172
136	17.88	14.72	16.11	17.32	15.23	18.74	10.781	3.173
137	17.95	14.48	16.6	16.84	14.6	19.52	10.801	3.173
138	17.94	14.25	17.13	16.37	14.06	20.26	10.867	3.174
139	17.99	14.04	17.63	15.96	13.48	20.9	10.984	3.175
140	17.98	13.77	18.17	15.53	13	21.56	10.777	3.175
141	18.08	13.63	18.63	15.08	12.54	22.04		
142	17.02	15.26	12.27	21.07	20.66	13.72	10.086	3.163
143	17.29	15.13	12.66	20.78	19.91	14.23	10.158	3.165
144	17.51	15.05	13.09	20.34	19.14	14.87	10.013	3.167
145	17.66	14.89	13.51	19.92	18.46	15.56	10.017	3.167
146	17.84	14.74	14.01	19.46	17.78	16.16	10.139	3.168
147	18.03	14.6	14.34	19.13	17.11	16.79	10.303	3.169
148	18.11	14.47	14.79	18.59	16.53	17.5	10.392	3.170
149	18.24	14.26	15.29	18.12	15.87	18.22	10.693	3.171
150	18.36	14.01	15.73	17.66	15.27	18.96	10.589	3.171
151	18.4	13.93	16.25	17.25	14.59	19.58	11.022	3.173
152	18.45	13.69	16.71	16.71	14.08	20.36	11.058	3.174
153	18.43	13.48	17.22	16.27	13.54	21.06	10.804	3.175
154	18.48	13.13	17.72	15.86	13.04	21.77	11.076	3.175
155	17.69	14.38	12.4	21.24	19.93	14.36	9.784	3.165
156	17.92	14.35	12.78	20.84	19.17	14.95	9.907	3.166
157	18.09	14.27	13.17	20.42	18.46	15.59	10.007	3.167
158	18.25	14.09	13.65	19.92	17.79	16.29	10.233	3.168
159	18.45	13.97	14.04	19.52	17.09	16.92	10.134	3.169
160	18.59	13.86	14.48	18.97	16.43	17.67	10.361	3.170
161	18.73	13.68	14.91	18.5	15.8	18.38	10.531	3.170
162	18.81	13.42	15.38	18.07	15.26	19.05	10.568	3.171
163	18.92	13.28	15.8	17.55	14.71	19.75	10.932	3.172
164	19.01	13.18	16.2	17.03	14.09	20.49	11.100	3.172

165	19.07	12.84	16.73	16.58	13.61	21.17	10.999	3.173
166	18.3	13.67	12.57	21.31	19.15	15	10.109	3.165
167	18.58	13.59	12.9	20.9	18.44	15.59	10.108	3.167
168	18.75	13.51	13.28	20.4	17.75	16.31	10.099	3.168
169	18.95	13.43	13.69	19.88	17.09	16.96	10.288	3.168
170	19.12	13.22	14.09	19.4	16.48	17.69	10.451	3.169
171	19.19	13.15	14.54	18.9	15.84	18.38	10.398	3.170
172	19.35	13	14.9	18.39	15.28	19.08	10.825	3.170
173	19.5	12.7	15.35	17.9	14.73	19.81	10.680	3.171
174	19.48	12.68	15.82	17.42	14.13	20.47	11.031	3.171
175	18.9	13.2	12.63	21.19	18.46	15.62		
176	19.2	12.96	12.99	20.76	17.72	16.37		
177	19.33	12.85	13.36	20.33	17.07	17.06		
178	19.04	13.15	13.84	19.91	16.6	17.46		
179	17.75	16.01	16.02	17.32	15.86	17.04		
180	19.77	12.53	14.5	18.73	15.33	19.14		
181	19.73	12.26	14.96	18.27	14.97	19.81		

**Table S2.** Comparison of the lattice parameters calculated according to Vegard's law with the experimental lattice parameters. The assignment of the samples corresponds to the numbering in **Figure 2**.

Sample	Chemical composition / at.%						LP <sub>Vegards law</sub> / Å	LP <sub>experimental</sub> / Å
	Cr	Mo	Nb	Ta	V	W		
7	14.13	22.9	16.97	14.68	17.39	13.93	3.145	3.168
13	14.51	20.68	20.6	13.19	13.8	17.22	3.152	3.177
154	18.48	13.13	17.72	15.86	13.04	21.77	3.143	3.175
172	19.35	13	14.9	18.39	15.28	19.08	3.137	3.170
155	17.69	14.38	12.4	21.24	19.93	14.36	3.136	3.165
83	15.74	18.05	13.46	18.87	20.62	13.25	3.138	3.163
89	16.45	17.25	16.28	16.81	16.42	16.79	3.143	3.171