

Table 21.2 ANGULAR FUNCTIONS—PROLATE AND OBLATE  
PROLATE

$S_{mn}(c, \cos \theta)$

$m$	$n$	$c \setminus \theta$	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°
0	0	1	0.8481	0.8525	0.8651	0.8847	0.9091	0.9354	0.9606	0.9815	0.9952	1.000
		2	0.5315	0.5431	0.5772	0.6320	0.7032	0.7842	0.8654	0.9355	0.9831	1.000
		3	0.2675	0.2815	0.3242	0.3967	0.4980	0.6226	0.7571	0.8805	0.9682	1.000
		4	0.1194	0.1312	0.1689	0.2379	0.3442	0.4885	0.6589	0.8271	0.9530	1.000
		5	0.0502	0.0585	0.0861	0.1419	0.2380	0.3839	0.5742	0.7776	0.9383	1.000
0	1	1	0.9046	0.8936	0.8602	0.8035	0.7225	0.6169	0.4878	0.3381	0.1731	0
		2	0.6681	0.6665	0.6598	0.6429	0.6081	0.5472	0.4540	0.3270	0.1717	0
		3	0.4034	0.4099	0.4273	0.4489	0.4630	0.4543	0.4068	0.3110	0.1695	0
		4	0.2042	0.2138	0.2415	0.2833	0.3294	0.3618	0.3566	0.2929	0.1669	0
		5	0.0916	0.1001	0.1262	0.1703	0.2279	0.2840	0.3104	0.2752	0.1643	0
0	2	1	1.022	0.9795	0.8553	0.6621	0.4198	0.1556	-0.0988	-0.3105	-0.4509	-0.5000
		2	1.064	1.030	0.9271	0.7579	0.5296	0.2602	-0.0192	-0.2668	-0.4385	-0.5000
		3	1.041	1.023	0.9640	0.8497	0.6660	0.4104	+0.1061	-0.1938	-0.4171	-0.5000
		4	0.8730	0.8768	0.8787	0.8513	0.7549	0.5553	0.2512	-0.0998	-0.3879	-0.5000
		5	0.6018	0.6233	0.6792	0.7407	0.7537	0.6494	0.3844	+0.0008	-0.3542	-0.5000
0	3	1	0.9892	0.9042	0.6692	0.3400	-0.0045	-0.2816	-0.4259	-0.4085	-0.2467	0
		2	0.9590	0.8864	0.6816	0.3840	+0.0560	-0.2261	-0.3907	-0.3949	-0.2447	0
		3	0.9090	0.8546	0.6957	0.4485	0.1501	-0.1364	-0.3319	-0.3714	-0.2412	0
		4	0.8197	0.7877	0.6868	0.5087	0.2591	-0.0215	-0.2514	-0.3376	-0.2361	0
		5	0.6650	0.6560	0.6183	0.5245	0.3482	+0.0971	-0.1575	-0.2952	-0.2293	0
1	1	1	0	0.1578	0.3134	0.4643	0.6067	0.7355	0.8450	0.9290	0.9819	1.000
		2	0	0.1194	0.2437	0.3757	0.5149	0.6562	0.7892	0.9000	0.9740	1.000
		3	0	0.0776	0.1654	0.2724	0.4030	0.5546	0.7144	0.8597	0.9627	1.000
		4	0	0.0449	0.1018	0.1832	0.2994	0.4537	0.6353	0.8150	0.9497	1.000
		5	0	0.0239	0.0588	0.1179	0.2162	0.3650	0.5602	0.7698	0.9361	1.000
1	2	1	0	0.4788	0.9054	1.232	1.417	1.435	1.276	0.9562	0.5119	0
		2	0	0.3896	0.7509	1.052	1.253	1.316	1.212	0.9335	0.5088	0
		3	0	0.2780	0.5538	0.8148	1.030	1.149	1.118	0.8992	0.5039	0
		4	0	0.1762	0.3683	0.5813	0.7968	0.9643	1.008	0.8575	0.4979	0
		5	0	0.1011	0.2254	0.3896	0.5906	0.7879	0.8957	0.8127	0.4911	0
1	3	1	0	0.9928	1.745	2.075	1.903	1.280	0.3775	-0.5521	-1.244	-1.500
		2	0	0.9559	1.710	2.092	1.998	1.432	0.5298	-0.4541	-1.214	-1.500
		3	0	0.8745	1.611	2.063	2.097	1.640	0.7606	-0.2972	-1.174	-1.500
		4	0	0.7393	1.418	1.934	2.128	1.841	1.032	-0.0951	-1.097	-1.500
		5	0	0.5662	1.146	1.691	2.047	1.975	1.299	+0.1319	-1.017	-1.500
2	2	1	0	0.0844	0.3295	0.7111	1.189	1.710	2.211	2.627	2.903	3.000
		2	0	0.0690	0.2744	0.6092	1.054	1.572	2.101	2.566	2.886	3.000
		3	0	0.0500	0.2051	0.4773	0.8738	1.380	1.944	2.475	2.859	3.000
		4	0	0.0328	0.1405	0.3487	0.6876	1.171	1.764	2.367	2.827	3.000
		5	0	0.0198	0.0898	0.2414	0.5212	0.9701	1.580	2.251	2.791	3.000
2	3	1	0	0.4222	1.570	3.116	4.596	5.530	5.548	4.501	2.522	0
		2	0	0.3597	1.358	2.755	4.175	5.170	5.327	4.417	2.510	0
		3	0	0.2765	1.070	2.255	3.576	4.641	4.994	4.286	2.491	0
		4	0	0.1934	0.7758	1.723	2.909	4.025	4.588	4.122	2.466	0
		5	0	0.1244	0.5226	1.243	2.269	3.395	4.150	3.936	2.437	0

From C. Flammer, Spheroidal wave functions. Stanford Univ. Press, Stanford, Calif., 1957 (with permission).