

Fm 7350 D. Langbein To be filed in IFM office  
 The Shape & Stability of liquid menisci at solid edges

Table 1: Rational representation of the coefficients  $D(k,l,m,n)$ ,  
 $-[(k-1)/2] \leq n \leq k-1$ , arising in the polynomial representation  
 (47) of the Fourier coefficients  $C(k,l,m)$ ,  $k = 1$  to 10

$C(0,0,0)$  1

$C(1,0,0)$  2

$K = 2$  : DENOMINATOR =  $2 \cdot 1!$

$C(2,0,0)$  -1 2

$C(2,0,1)$  1 0

$C(2,1,0)$  -1 0

$C(2,1,1)$  1 -2

$K = 3$  : DENOMINATOR =  $2^2 \cdot 2!$

$C(3,0,0)$  0 1 -8 7

$C(3,0,1)$  1 -4 3 0

$C(3,1,0)$  0 3 -3 0

$C(3,1,1)$  -1 0 8 -7

$K = 4$  : DENOMINATOR =  $2^4 \cdot 3!$

$C(4,0,0)$  0 -1 72 -166 92

$C(4,0,1)$  -6 46 -90 38 0

$C(4,0,2)$  6 -9 6 -12 0

$C(4,1,0)$  0 -4 54 -38 0

$C(4,1,1)$  0 -80 144 64 -80

$C(4,1,2)$  0 36 -54 54 0

$C(4,2,0)$  0 -3 -18 12 0

$C(4,2,1)$  6 -78 90 -54 0

$C(4,2,2)$  -6 93 -204 102 -12

$K = 5$  : DENOMINATOR =  $2^4 \cdot 4!$

$C(5,0,0)$  0 0 -7 -184 860 -1124 455

$C(5,0,1)$  0 9 -162 594 -658 217 0

$C(5,0,2)$  3 -39 106 -110 203 -163 0

$C(5,1,0)$  0 0 -35 -195 447 -217 0

$C(5,1,1)$  0 9 225 -1089 831 420 -396

$C(5,1,2)$  0 27 -250 396 -630 457 0

$C(5,2,0)$  0 0 -70 335 -428 163 0

$C(5,2,1)$  0 -18 729 -1701 1447 -457 0

$C(5,2,2)$  -3 12 -536 1954 -2072 704 -59

Table 1 (contd)

K = 6 : DENOMINATOR = 2<sup>6</sup>\*5!

C(6,0,0)	0	0	141	2070	-18150	41916	-38085	12138
C(6,0,1)	0	-20	2534	-15660	31400	-24944	6870	0
C(6,0,2)	-45	800	-3860	6660	-8645	10400	-4860	0
C(6,0,3)	45	-210	405	-1080	-645	4410	-2625	0
C(6,1,0)	0	0	846	2580	-15600	18864	-6870	0
C(6,1,1)	0	-40	-1776	22720	-49520	22304	16240	-11008
C(6,1,2)	0	-1040	9090	-19860	21040	-22240	10310	0
C(6,1,3)	0	600	-1920	4800	-2640	-9360	6720	0
C(6,2,0)	0	0	2115	-8310	17265	-15480	4860	0
C(6,2,1)	0	20	-11190	50460	-69160	42880	-10310	0
C(6,2,2)	45	-80	-2460	-7540	52730	-51380	15845	-410
C(6,2,3)	-45	210	4155	-14520	21765	-4170	-2895	0
C(6,3,0)	0	0	1410	-8820	14715	-10230	2625	0
C(6,3,1)	0	40	-6880	21360	-34480	24880	-6720	0
C(6,3,2)	0	1040	-7250	6900	-3515	-4570	2895	0
C(6,3,3)	0	-1320	14640	-41760	43440	-23280	6000	-720

K = 7 : DENOMINATOR = 2<sup>7</sup>\*6!

C(7,0,0)	0	0	0	-1061	-12528	202685	-733756
	1118737	-778708	204631				
C(7,0,1)	0	0	-525	-21200	213645	-671300	920097
	-577100	136383	0				
C(7,0,2)	0	270	-9045	69066	-188547	278790	-328911
	266562	-88185	0				
C(7,0,3)	45	-1215	7350	-18665	55020	-67245	-106130
	224405	-93565	0				
C(7,1,0)	0	0	0	-7427	-16065	254020	-562680
	468535	-136383	0				
C(7,1,1)	0	0	-1575	-635	-190980	911900	-1221265
	314155	384500	-196100				
C(7,1,2)	0	135	11340	-146718	520245	-715995	631080
	-449910	149823	0				
C(7,1,3)	0	765	-17085	67060	-189000	388155	-41255
	-429700	221060	0				
C(7,2,0)	0	0	0	-22281	95067	-277860	440916
	-324027	88185	0				
C(7,2,1)	0	0	-525	76125	-712485	1647570	-1657767
	796905	-149823	0				
C(7,2,2)	0	-405	12285	22221	-169902	-429525	1352061
	-1057077	264348	5994				
C(7,2,3)	-270	2295	-6720	-53745	215100	-727605	701430
	-27225	-103260	0				
C(7,3,0)	0	0	0	-37135	277830	-684885	782225
	-431600	93565	0				
C(7,3,1)	0	0	2625	83150	-446340	1133970	-1468825
	916480	-221060	0				
C(7,3,2)	0	0	-26460	410535	-1077420	1154550	-402780
	-161685	103260	0				
C(7,3,3)	225	-1845	28335	-419290	1626360	-2397225	1695560
	-647455	129860	-14525				

Table 1 (contd)

K = 8 : DENOMINATOR = 2<sup>9</sup>\*7!

C(8,0,0)	0	0	0	13523	165536	-4864244
	25735808	-58298514	66279360	-37392012	8358968	
C(8,0,1)	0	0	17766	372366	-6114402	27922398
	-57544242	60183710	-31314514	6464318	0	
C(8,0,2)	0	-1050	213864	-2482186	9931292	-19794502
	25724888	-24715138	14906948	-3828216	0	
C(8,0,3)	-1260	40740	-366870	1309322	-3404086	6573714
	-2486302	-10085334	12309206	-3977330	0	
C(8,0,4)	1260	-11970	47040	-189105	-94500	1790250
	-644280	-5112100	6103160	-1944880	0	
C(8,1,0)	0	0	0	108184	222306	-8386770
	29481508	-41587188	26638878	-6464318	0	
C(8,1,1)	0	0	71064	279000	1633968	-26516448
	70854840	-65709720	6840288	21150864	-8503056	
C(8,1,2)	0	-1260	-180054	4252990	-24186078	51727326
	-55686050	39755898	-20548122	5218150	0	
C(8,1,3)	0	-40320	819000	-4281704	11124624	-25530960
	28554568	3838632	-22946784	9168544	0	
C(8,1,4)	0	26460	-180810	760410	-1273860	-5126940
	10662750	2277450	-11051460	4347000	0	
C(8,2,0)	0	0	0	378644	-1976884	7473410
	-19051228	25180778	-15877036	3828216	0	
C(8,2,1)	0	0	71064	-813960	19652598	-76263306
	119639940	-92832208	35411222	-5218150	0	
C(8,2,2)	0	1680	-493584	1885520	4108832	-1719872
	-49334320	87102960	-54307008	10790976	730016	
C(8,2,3)	5040	-47040	-170520	3859016	-10053526	23929290
	-45592708	26427408	4032602	-4859162	0	
C(8,2,4)	-5040	25200	260400	-1680420	5915700	-946050
	-19275060	16391270	-283780	-1945720	0	
C(8,3,0)	0	0	0	757288	-7259714	27546666
	-48876968	44982504	-21038906	3977330	0	
C(8,3,1)	0	0	-71064	191016	8251488	-34777008
	71932392	-78119272	42466592	-9168544	0	
C(8,3,2)	0	1260	316134	-13469246	59335822	-93277758
	68334322	-11949210	-11680886	4859162	0	
C(8,3,3)	0	40320	-214200	4494952	-32905376	96732384
	-110250728	63348824	-18622240	2616432	-301168	
C(8,3,4)	0	-26460	44730	2928870	-14405580	28963620
	-15391530	-862750	1915760	-79660	0	
C(8,4,0)	0	0	0	473305	-5226060	16550730
	-26080040	22601460	-10319400	1944880	0	
C(8,4,1)	0	0	-88830	911610	-3652740	-3980340
	24563070	-33478830	19632060	-4347000	0	
C(8,4,2)	0	-630	415800	-9983750	37435860	-69008730
	60135880	-21030030	-1453620	1945720	0	
C(8,4,3)	-3780	6300	537390	-976850	-8860740	20372100
	-27103790	17168550	-4305840	79660	0	
C(8,4,4)	3780	-13230	-1048320	10901205	-38364480	60611040
	-58302720	34520850	-12786480	2833740	-284760	

Table 1 (contd)

K = 9 : DENOMINATOR = 2^8\*8!

C(9,0,0)	0	0	0	0	-14103	-332784	
	15843492	-116231472	364846176	-600277752	544035744	-258065784	50196483
C(9,0,1)	0	0	0	-51989	-858676	23112390	
	-146237546	420121268	-643145808	545383762	-242709250	44385849	0
C(9,0,2)	0	0	-11025	-648725	11394710	-63353790	
	171091396	-276555664	307940250	-241162898	115583069	-24277323	0
C(9,0,3)	0	3150	-171675	2232279	-11038734	31703490	
	-67862340	80748108	3362814	-107352000	93188655	-24813747	0
C(9,0,4)	315	-14490	155610	-726425	3270848	-6574386	
	-11649302	36141896	22522941	-110965988	91467236	-23628255	0
C(9,1,0)	0	0	0	0	-126927	-747873	
	36602181	-185124471	388305771	-407660799	213137967	-44385849	0
C(9,1,1)	0	0	0	-259945	-1284675	9336201	
	65308761	-391167315	702238131	-474043969	-20843277	164952228	-54236140
C(9,1,2)	0	0	-22050	143675	-13480380	127385650	
	-416429020	648495988	-573427372	331306934	-129717658	25744233	0
C(9,1,3)	0	945	173880	-4512690	32962860	-103637856	
	229673304	-370026090	255766476	76883751	-174552840	57268260	0
C(9,1,4)	0	7875	-315210	2431100	-11216058	40509518	
	-16077026	-155838536	164933706	88010727	-164575684	52129588	0
C(9,2,0)	0	0	0	0	-507708	3750057	
	-17292618	76401465	-176450640	201809283	-111987162	24277323	0
C(9,2,1)	0	0	0	-415912	151851	-65501765	
	426696053	-1011784655	1185109517	-734566651	226055795	-25744233	0
C(9,2,2)	0	0	11025	1539545	-19333470	35959935	
	4780230	171804675	-657842040	797588705	-404996655	63143700	7344350
C(9,2,3)	0	-10395	238140	754992	-26588646	99082725	
	-163469838	301986825	-360890082	124441086	57700650	-33245457	0
C(9,2,4)	-3150	54495	-213045	-2218405	16272543	-83978272	
	179063773	53299330	-364579005	212884077	15017492	-25599833	0
C(9,3,0)	0	0	0	0	-1184652	19236987	
	-123588864	337550661	-474645276	366214653	-148397256	24813747	0
C(9,3,1)	0	0	0	0	-7015575	-17611419	
	157459806	-446243490	702347709	-627566751	295897980	-57268260	0
C(9,3,2)	0	0	33075	-72975	45020955	-337930425	
	805830270	-909674388	464753667	10633371	-111839007	33245457	0
C(9,3,3)	0	-5985	-267750	4167450	-22703310	116460729	
	-554035356	1051438500	-940887801	432090414	-92348928	7283052	-1191015
C(9,3,4)	-315	-46935	608265	-3499755	-1336923	51251088	
	-289250556	368433261	-85469496	-70290591	29329713	272244	0
C(9,4,0)	0	0	0	0	-1776978	36720621	
	-170679663	380856609	-480693276	352480443	-140536011	23628255	0
C(9,4,1)	0	0	0	727846	-23070621	132016465	
	-237145930	50036252	350236551	-478558815	257887840	-52129588	0
C(9,4,2)	0	0	-11025	-1072400	82651065	-448931210	
	1128861524	-1510253311	1054061925	-301575792	-29330609	25599833	0
C(9,4,3)	0	12285	27405	-9506511	83404566	-173853120	
	97620726	191564877	-372650502	236581233	-52928715	-272244	0
C(9,4,4)	3150	-945	-235620	10988845	-133591962	575927044	
	-1105113457	1204019677	-835744336	377713567	-114539089	22686804	-2113678

Table 1 (contd)

K = 10 : DENOMINATOR = 2<sup>11</sup>\*9!

C(10,0,0)	0	0	0	0	-296630
	15727500	-905188200	8777324640	-36403925640	80960577367
	-104520128780	0	-32234477746	5549176340	
C(10,0,1)	0	0	0	1947312	34695404
	-1486621008	12563435136	-47915571744	99847453490	0
	86896678604	-33785756776	5537844896	-768	
C(10,0,2)	0	0	1119258	32174496	-864403164
	6436824840	-22918496832	0	-64427609071	61192932680
	-39972119280	15888106112	-2822749696	62464	
C(10,0,3)	0	-37800	11451132	-214073496	1419284004
	-4978064880	0	-19113892240	14898687841	4869457096
	-18373868736	12510593792	-2850084864	-719360	
C(10,0,4)	-28350	1455300	-21173670	127598688	-540927744
	1598563008	-1242486333	-3719932033	4105121146	9325050228
	-19076792696	12113999744	-2651990528	-2936576	
C(10,0,5)	28350	-453600	3024000	-17992800	-587790
	304441200	-105499792	-2153597335	0	4944804643
	-9695089244	6015697128	-1283154688	-9344384	
C(10,1,0)	0	0	0	0	-2966300
	75407760	-2762074560	18580786560	-53634523922	81475746361
	-68539534516	30344211896	-5537849312	4192	
C(10,1,1)	0	0	0	11683872	84447440
	-1667928672	1482391690	25079386558	-87292670248	115429095364
	-57191450652	-12576106368	22994888448	-6361726208	
C(10,1,2)	0	0	3197880	17757792	491940540
	-9727664544	48289285296	-109053820380	134467754705	-99413643926
	46833989184	-14118960896	2174893056	-709120	
C(10,1,3)	0	-30240	-8588160	357583968	-3734376960
	15643599264	-38460395903	69424803147	-80626825170	37400463040
	17201463232	-23963670528	6670946304	-317440	
C(10,1,4)	0	-1149120	41859720	-401117472	1860408480
	-7009673328	13400106383	2710453238	-33213153411	20043955056
	18485445952	-21996756736	5913239040	-583168	
C(10,1,5)	0	816480	-9979200	66225600	-216412560
	0	3436110703	3624052953	-16932689667	8826936239
	10121594100	-10935571672	2799520992	20167296	
C(10,2,0)	0	0	0	0	-13348350
	52799580	-397492830	-1686986280	13074767548	-28318617083
	28786383537	-14316609067	2822673156	3152	
C(10,2,1)	0	0	0	25315056	95982012
	3169340352	-36822291912	0	0	202367231308
	-102920797210	25787942640	-2173961376	-375104	
C(10,2,2)	0	0	479682	-40938048	1950435774
	-9863937324	14924613691	0	71388746862	-139750020576
	128785611712	-54347572736	6500447232	1154538496	
C(10,2,3)	0	113400	-21543732	80653608	1977338196
	-13489381872	0	-40400156211	55918536603	-45348701804
	6562070336	10583330816	-4111364096	-3125248	
C(10,2,4)	204120	-4127760	10778670	349763904	-2466330552
	0	-34070243023	37187307941	23275988749	-60731965728
	26257987808	3702419712	-3227582976	3474432	
C(10,2,5)	-204120	1701000	7019460	-115146360	727733160
	0	-8571701852	0	13464371256	-28208302934
	10961556000	2140760128	-1413129856	-47924480	

Table 1 (contd)

C(10,3,0)	0	0	0	0	-35595600
	-404982720	7597124220	-33642794641	70151668644	-80979522919
	53522145039	-19068284296	2850757216	-68352	
C(10,3,1)	0	0	0	15578496	621713472
	790294752	-16264118976	54535549915	-103683130249	125175979331
	-92842025132	38225425376	-6670334592	-324736	
C(10,3,2)	0	0	-5116608	25987392	-1983658896
	27682951392	0	169720575044	-142733842000	46205228456
	16815946752	-17992391680	4117145600	-4065280	
C(10,3,3)	0	120960	17515008	-621677952	4282914816
	-14150307456	56544230409	-152525353764	207127001630	-148137889624
	54128045888	-7689406464	3553280	-132808704	
C(10,3,4)	0	4596480	-51589440	230053824	189489888
	-418374432	0	-52253472577	38957143511	6726827144
	-16379617856	4307051808	165639296	-526080	
C(10,3,5)	0	-3265920	15966720	138620160	-1289494080
	0	0	-23887421871	24541134756	-3863552210
	-3893802400	1310059520	-428478976	626604544	
C(10,4,0)	0	0	0	0	-62292300
	-1281790440	12402444390	-41528833081	74030420969	-78388648708
	49734302787	-17543528244	2654635068	-70088	
C(10,4,1)	0	0	0	-27262368	2106789720
	-14884217712	0	-56620037056	9268327385	56710738340
	-67394431232	32334804224	-5912136704	-953344	
C(10,4,2)	0	0	-1598940	-47845728	-4358523330
	38703496356	0	0	-262329153186	152289130224
	-34525804416	-5913516544	3231508480	-10166272	
C(10,4,3)	0	-75600	10092600	488316528	-9471079800
	0	-50208055271	13397127834	50707096289	-69403143536
	35995881728	-6639455232	-95186944	-89001984	
C(10,4,4)	-175770	767340	15838200	-317151072	6233051160
	-39807105409	117394643219	-165363033715	140020701903	-76270515568
	27453775616	-7161434112	1595822080	-419155968	
C(10,4,5)	175770	-1247400	-10043460	-47575080	2103318630
	-12150159840	0	-28036449685	11601143464	-1471503552
	-438470176	208978432	-212956160	244012032	
C(10,5,0)	0	0	0	0	-37375380
	-883688400	6264713700	0	34184118184	-36597693360
	23583527837	-8438494192	1291421056	-77408	
C(10,5,1)	0	0	0	-27262368	1531306224
	-12323864448	0	-47101438956	22764678398	16480585772
	-28602140800	14887454208	-2816477184	-789504	
C(10,5,2)	0	0	1918728	-100354464	-1780772364
	15544599840	0	123841345759	-138183811067	83709311068
	-21526292608	-1692554752	1457471488	-4284416	
C(10,5,3)	0	-90720	-8926848	703178784	-8851562496
	32836980960	-63842905716	58249236960	-14490739504	-16005933136
	13007181312	-2709576704	-65460224	-36753408	
C(10,5,4)	0	-3447360	9729720	53490528	2305056096
	0	0	-60723245493	50823771223	-23936854376
	5604483712	-462583296	-40842240	79925248	
C(10,5,5)	0	4354560	-11430720	-747532800	7694099280
	-31797904320	0	0	85858039705	-55611452704
	25128560128	-7629817856	1350643712	-35901440	

Table 2: Rational representation of the coefficients  $Q(k,n)$ ,  
 $-(k-1) \leq n \leq k-1$ , arising in the polynomial representation  
(48) of the dispersion relation with respect to the  
deformation  $d$  and the azimuthal wavenumber  $s$

	$Q(1,n)$	$Q(2,n)$	$Q(3,n)$	$Q(4,n)$	$Q(5,n)$	$Q(6,n)$
numerators :	3	-3 81 -9	0 -24 298 -96 15	21 45 -9255 76017 -46473 15903 -2373	0 210 750 -50994 327078 -310374 170634 -52794 7101	-33 -51 11557 59205 -2184543 12084485 -15745983 12129285 -5787687 1583187 -190443
$-(k-1) \leq n \leq k-1$						
denominator:	$2^1$	$2^5$	$2^6$	$2^{13}$	$2^{14}$	$2^{18}$

