

CERES', PALLAS', JUNO'S AND VESTA'S PROXIMITIES  
WITH OTHER NUMBERED MINOR PLANETS

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*Summary.* Investigation has been performed of the orbital proximities of (1) Ceres, (2) Pallas, (3) Juno and (4) Vesta with the rest of the numbered minor planets. Only proximities of  $\rho_{\min} < 0.01$  AU are taken in consideration. It could be established that a total of 301 asteroid pairs were satisfying this condition, out of which: 83 pairing Ceres, 39 Pallas, 95 Juno and 84 Vesta. The closest proximities are distributed in the following way: 0.0002412 AU in the pair (1) Ceres and (1023) Thomana, 0.0001988 AU in the pair (2) Pallas and (1193) Africa, 0.0000154 AU (2300 km) in the pair (3) Juno and (217) Eudora, and 0.0004322 AU in the pair (4) Vesta and (428) Monachia. The proximity in (3, 217) is the closest found.

*J. Lazović i M. Kuzmanoski, PROKSIMITETI IZMEĐU PUTANJA PLANETOIDA CERES, PALLAS, JUNO, VESTA I DRUGIH NUMERISANIH MALIH PLANETA* — Ispitani su proksimiteti između prva četiri planetoida i svih ostalih numerisanih malih planeta, čije su najmanje međusobne daljine manje od 0.01 AJ. Ukupno je nađen 301 par od svih ispitanih, i to: 83 para sa planetoidom Ceres, 39 parova sa Pallas, 95 parova sa Juno i 84 para sa Vesta. Za najmanje proksimitetske daljine dobili smo: 0.0002412 AJ za par (1) Ceres i (1023) Thomana, 0.0001988 AJ za (2) Pallas i (1193) Africa, 0.0000154 AJ (2300 km) za (3) Juno i (217) Eudora, koja je najmanja od svih nađenih, i 0.0004322 AJ za (4) Vesta i (428) Monachia.

Mutual proximities of the four first numbered minor planets have earlier been investigated (Lazović, Kuzmanoski, 1980). Now, we are going over to the proximities of any of these four minor planets on one hand, with all the rest of the numbered minor planets on the other. Only proximities of proximity distances  $\rho_{\min} < 0.01$  AU are taken in consideration. The orbital elements have been taken from EMP for 1982. The calculus has been performed according to the formulae of Lazović (1967, 1980) and Lazović, Kuzmanoski (1978).

The results are printed in Table for each one of the pairs ( $j$ ,  $k$ ) of the numbered minor planets, whereby  $j = 1, 2, 3$  and  $4$  is related to the first four numbered minor planets: (1) Ceres, (2) Pallas, (3) Juno and (4) Vesta, and  $k$  relates to the rest of the numbered minor planets. By  $I$  is denoted the angle between the orbital planes of the minor planets pair considered. The value of this angle ranges from  $0^\circ.4$  to  $65^\circ.1$ . Thus, we are now facing the non-quasicoplanar asteroid pairs, whose proximities were heretofore not investigated, except in Lazović, Kuzmanoski (1980).

The inspection of Table reveals that there are but two asteroid pairs with inclination between of their respective orbital planes less than  $1^\circ$ :  $I=0^\circ.43321$  in (4) Vesta and (2171) Kiev — this being the lowest inclination yet found — and  $I=0^\circ.78200$  in the pair (4) Vesta and (2122) Pyatiletka. The highest inclinations, whereby  $j=1, 2, 3$  and  $4$ , found are:  $I=31^\circ.34643$  in the pair (1) Ceres and (480) Hansa,  $I=65^\circ.10342$  — the absolute highest found — in the pair (2) Pallas and (2134) Demispalm,  $I=37^\circ.80180$  in (3) Juno and (705) Erminia, and  $I=28^\circ.02035$  in (4) Vesta and (925) Alphonsina.

True anomalies of the proximity points are denoted by  $b_j$  and  $b_k$ , respectively. The last column in Table presents the proximity (minimum) distances  $\rho_{\min}$  in astronomical units (AU) of the asteroid pair concerned. The least proximity distances, any of the first four numbered minor planets comes at, are:  $\rho_{\min}=0.0002412$  AU in (1) Ceres and (1023) Thomana,  $\rho_{\min}=0.0001988$  AU in (2) Pallas and (1193) Africa,  $\rho_{\min}=0.0000154$  AU (2300 km) in (3) Juno and (217) Eudora — the absolute closest proximity and the only one with  $\rho_{\min}<0.0001$  AU — and  $\rho_{\min}=0.0004322$  AU in the pair (4) Vesta and (428) Monachia. In all 301 pairs with  $\rho_{\min}<0.01$  AU have been counted, grouped in the following way: 83 with Ceres, 39 with Pallas, 95 with Juno and 84 with Vesta. There are only 32 pairs with  $\rho_{\min}<0.001$  AU, viz.: 9 with Ceres, 3 with Pallas, 10 with Juno and 10 with Vesta. Thus, the number of the minor planet pairs declines sharply, from 301 to 32, by placing closer proximity distance range.

It is deemed that the results of the present work may be significant for our better understanding of the geometric-kinematic picture of the asteroid system. But we are interested in the dynamical aspect of these proximities also, and it will be the subject of a separate work. For close approaches of the minor planets are what we here have to deal with, one of them even having the known mass, a rather large one at that. A closer approach of two minor planets can produce sensible perturbations in the motion of the smaller body. Provided these perturbations were perceptible from the Earth, the mass of the perturbing asteroid could be derived, as has been pointed out in Lazović (1964).

$j$	$n$	$I$	$V_j$	$V_n$	$P_{min}$
1	31	20.92957	216.04238	273.60631	0.0053133
1	58	10.98846	259.48803	223.74761	0.0084672
1	81	11.84026	147.18223	249.57021	0.0015849
1	91	10.06275	118.17738	187.48647	0.0056379
1	92	3.87150	215.50311	23.18398	0.0099405
1	102	14.49073	90.62480	247.83468	0.0007414
1	103	8.78049	75.74528	266.70774	0.0005701
1	127	8.06748	336.44959	7.82071	0.0086847
1	128	4.38777	113.06755	248.20516	0.0042748
1	141	19.63557	318.25944	95.31019	0.0064058
1	172	16.69039	321.69280	143.61026	0.0053290
1	203	11.18625	303.58020	50.05735	0.0097502
1	237	1.10636	66.51082	295.60791	0.0016995
1	237	1.10636	246.85520	115.95229	0.0014738
1	255	11.01209	338.72741	323.85161	0.0043447
1	294	8.75192	249.18402	81.82532	0.0053306
1	339	14.92086	244.36275	63.15647	0.0021857
1	368	17.64953	92.18194	287.09905	0.0051936
1	385	17.88099	336.04106	315.72948	0.0011234
1	393	23.37421	258.04832	110.30825	0.0003417
1	432	2.23577	336.89954	228.73301	0.0027304
1	454	7.90323	323.46455	269.61515	0.0076341
1	459	8.90972	350.19417	95.18792	0.0036744
1	480	31.34643	90.50164	155.29801	0.0023613
1	492	9.28602	112.20389	289.14817	0.0012717
1	510	17.66907	259.06835	121.69196	0.0024118
1	512	4.79862	51.76354	210.32094	0.0004566
1	590	4.91939	202.42710	274.38512	0.0028956
1	635	16.91768	246.59283	358.03226	0.0072387
1	650	12.53817	97.49466	219.11808	0.0092665
1	688	14.78347	62.54779	267.85014	0.0041725
1	691	2.90740	148.27763	272.01427	0.0098024
1	696	22.26123	308.63738	56.27083	0.0068646
1	792	19.22027	108.76645	132.14004	0.0055723
1	815	5.85731	38.12198	76.07089	0.0068458
1	833	14.00677	150.90082	274.24718	0.0016339
1	849	29.10978	85.50953	311.02298	0.0091188
1	862	23.04289	309.51298	44.28769	0.0053069
1	947	6.04859	323.50701	90.45462	0.0055471
1	964	8.28558	161.89213	278.03659	0.0064330
1	970	14.30515	122.06979	230.60931	0.0081743
1	1010	7.00756	275.80198	52.47686	0.0030866
1	1023	17.32122	254.10379	14.19248	0.0002412
1	1096	1.13768	285.70856	110.97933	0.0067897
1	1109	14.74526	108.93364	5.41329	0.0026138
1	1195	17.50669	295.01087	199.72354	0.0089017
1	1220	6.30206	206.10149	277.66879	0.0012001
1	1232	20.77110	107.62319	34.04881	0.0026087
1	1247	10.51431	96.67926	314.10152	0.0026725
1	1248	1.46675	290.14506	20.94714	0.0020303
1	1300	1.16339	267.55931	339.96715	0.0035477
1	1331	8.53523	92.25162	303.04362	0.0035061
1	1347	21.68347	89.68717	176.39926	0.0051217
1	1393	5.73764	310.08165	223.11906	0.0078723
1	1424	6.39975	165.64159	327.31393	0.0088263

*J. Lazović, Ceres, Pallas, Juno's and vesta's proximities with other numbered ...*

<i>j</i>	<i>κ</i>	<i>I</i>	<i>U<sub>j</sub></i>	<i>U<sub>κ</sub></i>	<i>P<sub>min</sub></i>
1	1440	8.78573	294.85707	49.27283	0.0009419
1	1476	14.05140	312.15532	145.56548	0.0082745
1	1539	9.93822	277.67257	45.01271	0.0012992
1	1635	11.18725	97.06464	295.86944	0.0052411
1	1642	16.49028	146.83342	171.34619	0.0088923
1	1646	6.74716	54.48157	170.07230	0.0064061
1	1662	12.65549	124.45842	244.76640	0.0089468
1	1712	29.30380	91.74392	358.20214	0.0022227
1	1719	21.23109	324.09681	95.68581	0.0052989
1	1747	10.11042	272.43225	62.00089	0.0053543
1	1771	1.30029	167.47240	275.10403	0.0024598
1	1775	19.64231	250.72123	126.72173	0.0009195
1	1784	9.18689	284.58938	158.96490	0.0059675
1	1802	9.64949	272.07913	341.91255	0.0014209
1	1875	20.10051	248.00023	68.20142	0.0068571
1	1931	14.67837	72.95692	242.67282	0.0017769
1	1953	8.15992	287.79519	40.04850	0.0039782
1	1955	11.60126	286.57814	25.73061	0.0059511
1	1957	5.53877	188.47743	81.77613	0.0047472
1	1991	13.92235	309.78103	149.63812	0.0014195
1	2032	9.70066	113.04221	297.87999	0.0041222
1	2052	18.49232	264.54066	3.23146	0.0083449
1	2091	6.50744	207.07923	287.08815	0.0009051
1	2116	13.98523	65.70979	236.52362	0.0004129
1	2130	12.00855	314.75109	151.46269	0.0038766
1	2163	8.60310	278.43034	50.78027	0.0098431
1	2214	20.09012	244.72230	78.82021	0.0018600
1	2259	15.09220	292.86986	155.11446	0.0067447
2	28	26.87586	239.95827	236.06063	0.0052482
2	48	28.39149	227.34659	264.33714	0.0051314
2	99	45.02816	244.61111	128.82241	0.0071264
2	139	45.59906	52.40164	7.24347	0.0076470
2	275	31.18331	55.67068	7.23073	0.0036900
2	316	33.30486	233.13250	273.88179	0.0077205
2	337	42.65115	50.43563	79.40583	0.0038588
2	387	24.96979	81.05452	275.52528	0.0006726
2	416	41.67132	247.60779	111.27176	0.0077297
2	417	29.03083	223.78333	163.62614	0.0038372
2	570	33.75397	227.49504	338.12824	0.0057536
2	582	10.39768	105.10948	120.44123	0.0068397
2	630	31.80735	254.85298	230.80504	0.0038639
2	661	43.71343	226.01951	192.73822	0.0068194
2	734	40.52926	231.65528	289.13148	0.0073980
2	770	37.65567	55.59851	115.38295	0.0014970
2	859	45.59225	243.10194	322.51016	0.0061703
2	861	31.15829	243.09888	47.95436	0.0045675
2	866	34.47318	245.16732	7.86886	0.0037027
2	968	26.23044	214.45238	193.15457	0.0026125
2	1009	28.83945	21.83006	94.45030	0.0043183
2	1014	34.42258	226.00163	225.30757	0.0013787
2	1016	40.63349	52.49829	113.74529	0.0037947
2	1109	35.43288	222.83332	89.83496	0.0037791
2	1193	43.98153	67.06146	311.99038	0.0001988
2	1226	43.89189	55.77141	24.25806	0.0068949
2	1239	35.11427	52.81291	66.91038	0.0057137

<i>j</i>	<i>K</i>	<i>I</i>	$\nu_j$	$\nu_K$	$\rho_{min}$
2	1296	32.52300	43.73759	65.76159	0.0044824
2	1302	34.55214	234.47754	272.24510	0.0030575
2	1338	39.12088	46.43661	95.08004	0.0032877
2	1413	24.64960	227.28205	236.85895	0.0055053
2	1518	40.47524	55.82750	113.76741	0.0072956
2	1575	19.16022	4.41160	297.49417	0.0098835
2	1888	33.35492	39.83477	46.66990	0.0099258
2	1900	37.35758	39.72939	101.02720	0.0015817
2	1910	26.08212	218.80906	183.11664	0.0004851
2	1995	41.93742	63.15533	6.70604	0.0068016
2	2134	65.10342	240.49615	228.62730	0.0050241
2	2288	38.95131	73.25839	16.06265	0.0073387
3	72	9.31980	92.30618	199.69430	0.0020863
3	109	20.76698	118.14861	116.13758	0.0028801
3	125	8.34625	114.42091	252.99937	0.0066064
3	183	16.03768	63.74331	73.70810	0.0023965
3	193	25.04258	292.92476	278.87752	0.0086074
3	217	2.92018	139.32546	238.90798	0.0000154
3	228	15.11010	107.76440	193.49775	0.0099917
3	240	11.91985	121.50988	123.89003	0.0060679
3	248	12.68987	275.45013	77.09804	0.0073363
3	251	3.75975	154.95181	124.10544	0.0015940
3	299	12.57297	285.96147	311.94604	0.0003478
3	357	7.88473	201.94298	236.98430	0.0022471
3	370	18.29179	90.94067	149.75407	0.0005097
3	378	11.55818	259.90497	289.40867	0.0056364
3	405	16.79159	68.19215	283.71114	0.0078956
3	413	17.80439	6.29241	65.84752	0.0093405
3	415	8.93703	331.18451	324.28307	0.0038152
3	417	7.94318	89.34911	322.79313	0.0037484
3	435	14.55864	117.14468	178.73260	0.0042503
3	439	10.51515	184.06160	166.25543	0.0023076
3	485	5.52298	206.72870	160.15294	0.0043657
3	534	12.60885	127.23146	114.69379	0.0076055
3	571	18.15111	116.87059	144.36436	0.0057581
3	575	28.05331	292.87246	26.13119	0.0059812
3	623	25.34043	270.32305	255.94456	0.0088806
3	640	14.08413	233.33749	16.54317	0.0039847
3	644	12.52007	297.78119	336.81411	0.0090866
3	670	5.52608	288.47493	336.66047	0.0079368
3	672	24.10233	109.89373	233.35692	0.0012710
3	679	20.43937	24.37974	60.85510	0.0095800
3	705	37.80180	121.77757	76.32755	0.0013027
3	720	14.74907	119.42509	24.56805	0.0040958
3	732	2.11746	273.17877	92.97053	0.0067930
3	745	9.82643	183.65628	128.11684	0.0090621
3	845	22.87280	139.57236	217.46917	0.0052144
3	861	10.62193	151.11263	251.48096	0.0037274
3	865	1.59027	21.18107	321.20325	0.0055070
3	903	2.57706	166.14414	177.64219	0.0040054
3	906	22.43125	137.37048	217.86636	0.0044141
3	919	11.30884	253.93262	286.42695	0.0051311
3	930	28.19528	107.63818	215.43898	0.0067084
3	996	13.66412	113.10400	37.14233	0.0037020
3	1020	9.05199	108.55714	311.52757	0.0025216

$j$	$K$	$I$	$V_j$	$V_K$	$\rho_{min}$
3	1021	13.32447	7.53569	21.56143	0.0041346
3	1039	10.78335	94.49214	325.05335	0.0092371
3	1045	13.04056	292.13219	275.75454	0.0096522
3	1058	11.08448	97.34140	199.33547	0.0042971
3	1085	7.97663	138.74307	293.23350	0.0086575
3	1116	29.50735	116.83979	94.91857	0.0047341
3	1159	26.04681	291.59350	48.08919	0.0065400
3	1160	27.80436	120.23469	168.72959	0.0078716
3	1185	14.91764	315.39989	298.66195	0.0007184
3	1221	1.12959	281.96296	141.81707	0.0002593
3	1224	14.91941	80.83993	112.20340	0.0002721
3	1228	15.60327	104.46423	10.11833	0.0055907
3	1272	20.78582	281.42790	13.84026	0.0038371
3	1278	15.35624	336.92086	64.97296	0.0083678
3	1291	9.26054	249.13926	335.90496	0.0079603
3	1336	12.42474	127.62559	227.82884	0.0046654
3	1403	3.84385	150.70310	219.25477	0.0039919
3	1403	3.84385	332.12652	40.67898	0.0060686
3	1451	7.92440	288.55265	119.39928	0.0070364
3	1456	19.90109	263.59411	342.62705	0.0086993
3	1515	20.57500	139.75924	156.23414	0.0085814
3	1530	15.42794	97.81456	145.23314	0.0007245
3	1624	11.46245	119.12931	30.36655	0.0030571
3	1637	26.08284	130.02761	293.25058	0.0098413
3	1650	10.70416	284.92834	85.13040	0.0063766
3	1669	13.83724	115.52358	329.43083	0.0093817
3	1677	27.63450	286.02680	49.72130	0.0083831
3	1677	27.63450	106.38576	230.05957	0.0043059
3	1698	14.24722	116.21025	26.67489	0.0097545
3	1730	3.48249	287.34689	308.24538	0.0056895
3	1732	3.66581	161.06366	211.34803	0.0069616
3	1745	13.47629	126.71667	129.29749	0.0069089
3	1763	16.24046	101.87739	186.83300	0.0032888
3	1767	5.38908	248.24359	337.53385	0.0052841
3	1783	4.37641	233.39293	147.45108	0.0032538
3	1785	14.88689	279.64864	168.34756	0.0047562
3	1800	9.89053	318.27436	36.96819	0.0021902
3	1802	10.69493	118.99886	91.80279	0.0081597
3	1881	9.68361	243.51446	9.01858	0.0018300
3	1882	6.91690	248.44888	337.38155	0.0053620
3	1936	17.23274	75.71256	335.17949	0.0089287
3	1942	37.32971	110.27978	170.10683	0.0006683
3	2002	4.74485	274.88827	102.20173	0.0096895
3	2084	8.66542	303.79052	324.60783	0.0072217
3	2094	15.56802	275.39324	160.15858	0.0009406
3	2098	19.41869	108.93371	194.77363	0.0039040
3	2116	3.92503	110.41122	183.71239	0.0035714
3	2175	11.10091	97.96899	150.56270	0.0039937
3	2259	15.24489	96.28628	222.49504	0.0038337
3	2265	12.15861	217.63756	161.46777	0.0009826
3	2265	12.15861	37.89887	341.72669	0.0037999
3	2290	3.29576	351.20542	342.61131	0.0084385
4	17	2.82978	342.49206	334.91984	0.0029688
4	39	8.36364	125.65420	13.77656	0.0076710
4	40	3.02892	47.42727	298.56357	0.0092194

$j$	$k$	$I$	$V_j$	$V_k$	$P_{min}$
4	66	8.04657	233.34670	76.43797	0.0089158
4	67	10.01817	352.48206	298.60705	0.0094192
4	67	10.01817	173.21975	119.35798	0.0017040
4	89	22.67593	49.68835	306.97772	0.0091833
4	99	12.25178	297.36564	314.99050	0.0006396
4	109	11.53239	251.69082	86.04239	0.0074457
4	112	9.28764	40.58457	314.05754	0.0026406
4	118	7.02209	97.27521	270.65869	0.0049525
4	140	3.96491	28.31074	339.03406	0.0039159
4	142	9.36904	211.73853	241.82808	0.0018279
4	262	8.01009	90.19762	281.59265	0.0057005
4	264	8.48411	114.39836	339.24208	0.0093071
4	335	5.00494	342.76597	309.34136	0.0070666
4	344	15.51104	133.28995	102.04956	0.0005973
4	369	5.80010	187.62974	79.25862	0.0082114
4	428	9.12882	252.63315	113.71053	0.0004322
4	435	7.07695	44.96594	303.22685	0.0023483
4	442	3.68424	329.96788	5.07874	0.0068693
4	470	8.18777	333.26164	9.05407	0.0091824
4	518	10.67096	172.12936	105.65142	0.0094149
4	527	3.50360	84.18229	14.50514	0.0051039
4	571	9.59753	242.73816	106.73445	0.0019816
4	648	17.03081	215.11046	10.02895	0.0058429
4	749	1.87025	192.68502	208.92726	0.0004772
4	757	9.99228	264.78155	92.65754	0.0071550
4	763	11.20794	33.09260	268.93478	0.0099229
4	825	3.74720	33.28421	75.12082	0.0087526
4	826	12.73914	3.21381	351.56419	0.0073744
4	853	10.52223	150.40077	162.91388	0.0039200
4	870	2.17854	331.88957	268.87423	0.0028133
4	899	18.91505	189.69115	64.52378	0.0034915
4	905	7.00704	255.03281	129.06982	0.0049287
4	924	6.62995	128.80392	14.53638	0.0075391
4	925	28.02035	221.97944	335.36322	0.0036984
4	935	9.67080	51.82492	261.24523	0.0014399
4	941	5.95378	89.51190	316.83844	0.0027584
4	952	11.78755	87.42682	326.80492	0.0078129
4	1044	5.01828	66.03632	33.88935	0.0039077
4	1056	1.71352	209.43963	147.43226	0.0007282
4	1078	1.27252	115.27383	231.92480	0.0094112
4	1137	3.72283	59.39383	317.91405	0.0008807
4	1219	6.33250	66.05111	253.84824	0.0076969
4	1270	1.33723	233.01608	130.89224	0.0045740
4	1278	4.27072	353.60605	279.39668	0.0005504
4	1324	11.47902	217.86272	197.95506	0.0010878
4	1327	5.16965	84.84855	11.83494	0.0089265
4	1375	5.70969	260.71503	70.42217	0.0090904
4	1378	6.19381	240.14519	249.36262	0.0005632
4	1396	9.32327	238.28488	226.42627	0.0094731
4	1412	4.46132	72.84716	247.40343	0.0088739
4	1415	9.84835	44.26295	88.68031	0.0010109
4	1460	3.53033	97.54358	279.63275	0.0027309
4	1500	9.73539	260.67527	117.78008	0.0097696
4	1536	7.35149	16.88397	265.11769	0.0052485
4	1590	10.17237	188.97060	164.46017	0.0062080

$j$	$k$	$I$	$v_j$	$v_k$	$\rho_{min}$
4	1594	5.04171	300.59358	263.12991	0.0097840
4	1596	19.57552	187.13165	31.73727	0.0086182
4	1651	8.28445	352.65058	81.16718	0.0043648
4	1658	2.24278	358.68378	327.92979	0.0062296
4	1673	8.78942	186.31849	28.50418	0.0046723
4	1681	1.16006	124.42191	283.20296	0.0049555
4	1714	14.96391	38.87028	30.24827	0.0079062
4	1751	14.17573	187.02649	70.49790	0.0091475
4	1770	8.27138	248.80865	79.64652	0.0048404
4	1773	3.56908	258.93156	270.89159	0.0082415
4	1789	5.16577	210.12836	147.81663	0.0018941
4	1797	6.96739	54.76100	283.21326	0.0066384
4	1874	5.98216	167.91213	69.36574	0.0029820
4	1938	6.64784	181.47648	199.79259	0.0071560
4	1998	12.22788	245.52590	262.08279	0.0022758
4	2015	16.59663	248.93435	243.97614	0.0008282
4	2021	5.64726	339.24663	274.83080	0.0062042
4	2021	5.64726	339.24663	274.83080	0.0062042
4	2066	3.59405	15.44299	43.10432	0.0012871
4	2078	27.26350	32.28381	260.13350	0.0067708
4	2079	17.15444	256.82432	12.44896	0.0027263
4	2080	7.49539	59.75148	238.99220	0.0043561
4	2113	8.78796	75.56246	318.46159	0.0077155
4	2122	0.78200	236.72397	148.88058	0.0061209
4	2171	0.43321	180.09787	152.25813	0.0005085
4	2204	17.66502	285.55930	97.30925	0.0071404

The calculations were carried out on the IBM 360/44 of the Computing Centre of the Institute for Mathematics in Beograd.

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