Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0 β_0	λ_0 β_0	λ_0 β_0	λ_0 β_0	Sidereal period (days)	Ellipsoidal model a/b b/c	Albedo varieg.	Reference code
1 Ceres								
I	Prograde rotation				- - - - -			Mor77
I	Prograde rotation				- - - - -			Han77
P		270° +36°	—P—		- - - - -			Joh+83
R		Concentric ring region[6]			- - - - -			Ost87
S	—S—	332° +70°	—S—	—S—	- - - - -			Sai+93
S		298° +78°		186° −58°	- - - - -	1.08 1.06	X[36]	Dru+98
S	———	7° +83°	———	———	0.378088	1.00 1.08		Car+08
S	———	352° +80°	———	———	- - - - -	1.00 1.07		Dru+08
Synthesis	———	355° +81°	———	———	0.378088	1.08 1.06		Synthesis
2 Pallas								
EZ		228° +43°	—E—		0.325440			Sch+76
I	Prograde rotation				- - - - -			Mor77
I	Prograde rotation				- - - - -			Han77
Z		211° +38°	31° −38°		- - - - -			Bur+83
AM	44° +4°	148° +55°	224° −4°	328° −55°	- - - - -	1.14 1.0[1]		Zap+84
A		200° +40°	20° −40°		- - - - -			Bin84
A		220° +15°	40° −15°		- - - - -			Bin84
A	49° +6°	157° +53°	229° −6°	337° −53°	- - - - -	1.14 1.0[1]		Bur+85
R		Aspect circle[7]			- - - - -			Ost85
OEAI	—O—	227° +20°	—E—	—E—	0.325995	1.11 1.03		Lam85
OEA		—O—	54° −6°		0.32555136	1.06 1.05		Mag86
R		Concentric ring region[6]			- - - - -			Ost87
S	100° −22°	295° +16°	—S—	—S—	- - - - -	1.10 1.01		Dr+89a
O	70° +15°	250° +15°	70° −15°	250° −15°	- - - - -	1.11 1.30		Dr+89b
L		193° +43°	35° −12°		0.3255510	1.1 1.05[31]		Tor+03
S	———	———	32° −21°	———	- - - - -	1.08 1.5		Dru+08
L	———	193° +44°	36° −13°	———	0.3255509			Hi+08
S	———	———	34° −27°	———	- - - - -	1.09 1		Dru+09
S	———	———	30° −16°	———	- - - - -	1.07 1.08		Car+10a
LO	———	———	35° −12°	———	0.3255513	shape[31]		Dur+11
Synthesis	———	———	33° −17°	———	0.3255513	1.1 1.1		Synthesis
3 Juno								
EA	71° +49°			—E—	0.3004950			Cha+62
AM	101° +29°	321° +57°	141° −57°	281° −29°	- - - - -	1.23 1.0[1]		Zap+84
OEA	110° +40°	—O—	—E—	—E—	0.30040	1.20 1.02		Mag86
E	104° +36°	316° +62°	—E—	—E—	0.3003969			Bir+89
EAM	108° +34°		—E—	—E—	0.3003970	1.18 1.0[2]		Eri+93
EA	108° +38°	———	—E—	—E—	0.3003970	1.20 1.26		Dot+95
L	103° +27°	———	———	———	0.3003971	1.2 1.3[31]		Ka+02a
S	118° +30°	———	———	———	- - - - -	1.2 1.07		Dru+08
LO	103° +27°	———	———	———	0.3003971	shape[31]		Dur+11
Synthesis	110° +29°	———	———	———	0.3003971	1.2 1.2		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0 β_0	λ_0 β_0	λ_0 β_0	λ_0 β_0	Sidereal period (days)	Ellipsoidal model a/b b/c	Albedo varieg.	Reference code
4 Vesta								
EA	14° +80°			—E—	0.2227006			Cai56
EA	—E—	—E—	−90°	−90°	0.4453666	1.14 1.0[1]		Hau58
EA	57° +74°			—E—	0.2225884			Cha+62
E	126° +65°		—E—	—E—	0.22258871			Geh67
E	139° +47°	333° +39°	—E—	—E—	0.4451021	shape[21]		Tay73
I	Prograde rotation				- - - - -			Mor77
I	Prograde rotation				- - - - -			Han77
E	103° +43°	301° +33°	—E—	—E—	0.2225889			Tay+85
E	120° +65°	325° +55°	—E—	—E—	0.22258849	1.01 1.4[2]		Mag86
AM	85° +58°	310° +60°			- - - - -	1.0[1] 1.27	X[18]	Cel+87
S E	—S—	336° +55°			0.2225887	1.10 1.14	X[20]	Dr+88a
S	—S—	311° +67°	—S—	—S—	- - - - -	1.07 1.14		Dr+89a
EA	160° +52°	340° +40°	—E—	—E—	0.2225885			Rey+93
S	———	343° +56°	———	———	- - - - -	1.06 1.15		McC+94
S	—S—	335° +63°	—S—	—S—	- - - - -	1.03 1.2		Tho+97
S	—S—	319° +59°	—S—	—S—	- - - - -	1.03 1.2		Tho+97
S	———	357° +50°	———	———	0.2225887	1.05 1.26		Dru+98
S	———	324° +55°	———	———	- - - - -	1.03 1.2		Dru+08
S	———	326° +59°	———	———	- - - - -			Li+11
S	———	326° +58°	———	———	- - - - -			Li+11
Synthesis	———	326° +58°	———	———	0.2225886	1.05 1.2		Synthesis
5 Astraea								
E				328° −9°	0.7005047			Tay78
AM	131° +49°	328° +46°	148° −46°	310° −49°	- - - - -	1.29 1.0[1]		Za+86b
R		Concentric ring region[6]			- - - - -			Ost87
EA	125° +46°	318° +44°	—E—	—E—	0.700026	1.27		Eri+93
EA	114° +57°		—E—	—E—	0.700026	1.21 1.15		DeA95
AM		312° +58°	132° −58°		- - - - -	1.44 1.30		Bla+00
SL	124° +50°	———	———	———	0.7000345	1.11 1.10		Hi+08
L*	126° +40°	310° +44°	———	———	0.700025	shape[31]		Dur+09
O	126° +40°	———	———	———	0.700025	shape[31]		Dur+11
Synthesis	125° +43°	———	———	———	0.700025	1.24		Synthesis
6 Hebe								
A	145° +15°			—E—	- - - - -			Geh+62
E		365° +50°			0.3031020	1.15 1.0[1]		Geh+77
AM	130° +33°	344° +30°	164° −30°	310° −33°	- - - - -	1.24 1.0[1]		Zap+84
OEA	—O—	355° +50°	—E—	—E—	0.3031025	1.14 1.2		Mag86
R		Concentric ring region[6]			- - - - -			Ost87
E		363° +60°	—E—	—E—	0.3031024			Mic88
EA		365° +27°	—E—	—E—	0.3031023	1.13 1.06		DeA95
EA	—O—	353° +24°	—E—	—E—	0.3031026	1.14 1.00		Dot+95
EA		check[5]			- - - - -			Lag+95
AM	128° +30°			308° −30°	- - - - -	1.32 1.11		Bla+00
L	———	339° +45°	———	———	0.3031029	1.1 1.1[31]		Tor+03
O	———	340° +42°	———	———	0.3031029	shape[31]		Dur+11
Synthesis	———	340° +43°	———	———	0.3031029	1.1 1.1		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
7 Iris													
EA			184°	+55°	—E—				0.2967853	shape[9]			Cai56
AM			193°	+15°	13°	−15°			- - - - -				Geh+62
AM	11°	+41°					191°	−41°	- - - - -	1.31	1.35		Tay77
EA	15°	+25°	195°	+15°	—E—		—E—		0.29745197	1.18	1.40		Mag86
AM	18°	+33°	193°	+16°	13°	−16°	198°	−33°	- - - - -	1.19	1.21		Za+86b
R			Concentric ring region[6]						- - - - -				Ost87
EA	8°	+35°	187°	+5°	—E—		—E—		0.29745195	1.24	1.36		DeA95
R	15°	+25°							- - - - -				Mit+95
L	20°	+10°	200°	+10°	———		———		0.2974517	1.2	1.0[31]		Ka+02a
R	15°	+25°	———		———		———		0.297450	1.1	1.2		Ost+10
LO	20°	+14°	———		———		199°	−2°	0.2974517	shape[31]			Dur+11
Synthesis	18°	+20°	———		———		———		0.297451	1.2	1.2		Synthesis
8 Flora													
A	157°	+10°					—E—		- - - - -				Geh+62
A	140°		320°		140°		320°		- - - - -				Zap+83
A	148°	+45°	328°	+45°	148°	−45°	328°	−45°	- - - - -	1.12	1		Hol+87
AM	135°	+43°	327°	+32°	147°	−32°	315°	−43°	- - - - -	1.10	1.28		DiM+89
EA	139°	+14°					319°	−14°	- - - - -	1.05	1.16		DeA95
AM	122°	+37°					302°	−37°	- - - - -	1.097	1.062		Bla+98
L	160°	+16°	———		———		———		0.533292	1.0	1.2[31]		Tor+03
LO	—O—		———		———		335°	−5°	0.5361113	shape[31]			Dur+11
Synthesis	—O—		———		———		335°	−5°	0.5361113	1.05	1.2		Synthesis
9 Metis													
AM	156°	+15°					336°	−15°	- - - - -				Geh+62
A			348°	+76°	168°	−76°			- - - - -				Cha+62
AM	191°	+56°					371°	−56°	- - - - -	1.30	1.70		Zap+79
AM	186°	+43°	362°	+26°	182°	−26°	366°	−43°	- - - - -	1.32	1.34		Zap+84
R			Concentric ring region[6]						- - - - -				Ost87
EAM	183°	+25°	361°	+9°	—E—		—E—		0.2116324	1.27	1.26		Dr+88b
EAM	180°	+30°	360°	+20°	—E—		—E—		0.2116322	1.27	1.26		Mag90a
EAM	181°	+23°	360°	+7°	—E—		—E—		0.2116323	1.27	1.24		Dru+91
EA	185°	+31°			—E—		—E—		0.2116323	1.31	1.22		DeA95
L	181°	+23°	359°	+9°	———		———		0.2116325	1.2	1.4[31]		Tor+03
SL	181°	+23°	———		———		———		0.2116325	1.26	1.26		Ma+06
LO	180°	+22°	———		———		———		0.2116323	shape[31]			Dur+11
Synthesis	181°	+23°	———		———		———		0.2116324	1.3	1.3		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
10 Hygiea													
I					Retrograde rotation				- - - - -				Mor77
EA	—E—		—E—		112°	−41°	299°	−39°	1.152462	1.36	1.04		Mic+91
EA	—E—		—E—		100°	−34°	285°	−34°	1.150969	1.28	0.65		Eri+93
EAM	—E—		—E—		117°	−37°	304°	−35°	1.150977	1.30	1.18		Mic93
AM	118°	+44°					298°	−44°	- - - - -	1.343	1.144		Bla+98
AM	122°	+42°					302°	−42°	- - - - -	1.343	1.144		Bla+98
L	———		———		115°	−30°	300°	−30°	1.150967	1.3	1.1[31]		Ka+02a
L*	———		———		122°	−44°	312°	−42°	1.152463	shape[31]			Ha+11
O	———		———		122°	−44°	312°	−42°	1.152460	shape[31]			Dur+11
Synthesis	———		———		120°	−40°	310°	−40°	1.152462	shape[31]			Synthesis
11 Parthenope													
AM	64°	+38°	253°	+51°	73°	−51°	244°	−38°	- - - - -	1.225	1.208		Bla+98
12 Victoria													
A			242°	+17°	62°	−17°			0.36060				Tem+69
R			Concentric ring region[6]						- - - - -				Ost87
EA	9°	+55°	176°	+40°	—E—		—E—		0.3608665	1.25	1.00		Dot+95
L	———		137°	+55°	———		———		0.360829	1.3	1.3[31]		Tor+03
Synthesis	———		150°	+50°	—E—		—E—		0.36085	1.3			Synthesis
13 Egeria													
AM	103°	+13°					283°	−13°	- - - - -	1.43	1.26		Bla+00
L*	44°	+21°	238°	+11°	———		———		0.293611	shape[31]			Ha+11
Synthesis	44°	+21°	238°	+11°	———		———		0.293611	shape[31]			Synthesis
14 Irene													
AM			270°	+34°	90°	−34°			- - - - -	1.148	1.080		Bla+98
L*	———		———		97°	−22°	268°	−24°	0.6262462	shape[31]			Ha+11
Synthesis	———		———		97°	−22°	268°	−24°	0.6262462	shape[31]			Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
15 Eunomia													
EA	—E—		—E—			−90°		−90°	0.253448				Gro+54
EA	—E—		—E—				337°	−82°	0.25344810	1.51	?		Cai56
EA	—E—		—E—			−90°		−90°	0.253448				HG+58
EA	—E—		—E—		70°	−74°			0.25344810				Cai60
EA	—E—		—E—			−90°		−90°	0.25336				Sca+75
A	164°	+52°	————		————		344°	−52°	- - - - -	1.6	1.0[1]		Pii+85
A	170°	+57°	————		————		350°	−57°	- - - - -	1.6	1.4[1]		Pii+85
E	Prograde rotation				—E—		—E—		0.25336				Lup+85
EA	—E—		—E—		106°	−73°	351°	−61°	0.25344806	1.50	1.0		Mag86
E	—E—		—E—		131°	−71°	360°	−50°	0.25344810				Mic88
EAM	—E—		—E—		82°	−78°	352°	−61°	0.25344805	1.40	1.06		Dr+88b
EA	—E—		—E—		108°	−74°	350°	−59°	0.25344808	1.44	1.0		Mag90a
EAM	—E—		—E—		106°	−73°	————		0.25344806	1.44	1.02		Dru+91
EA	—E—		—E—		96°	−63°			0.25344806	1.47	1.00		DeA92
E	—E—		—E—		Retrograde rotation				- - - - -				Kru+92
EAM	—E—		—E—		102°	−76°	354°	−57°	0.25344814	1.36	1.20		Mic93
EA	—E—		—E—		106°	−73°			0.25344806	1.47	1.00		DeA95
L	————		————		————		355°	−65°	0.25344800	1.4	1.2[31]		Ka+02a
S	————		————		————		352°	−58°	- - - - -	1.76	1.0		Tan+03
Synthesis	—E—		—E—		106°	−74°	353°	−60°	0.25344808	1.42	1.1		Synthesis
16 Psyche													
EZ	————		225°	+5°	—E—		—E—		0.17483120				Zho+82
Z			222°	+4°	42°	−4°			0.174831	1.3	1.3		Lup+83
AM	40°	+23°	217°	+31°	37°	−31°	220°	−23°	- - - - -	1.32	1.26		Zap+84
E	41°	+33°	223°	+37°					0.1748143				Ted+85
AM	39°	+35°	220°	+40°	40°	−40°	219°	−35°	- - - - -	1.33	1.33		Ted+85
EA	—E—		—E—		36°	−21°	217°	−14°	0.17483113	1.19	1.16		Mag86
R			Concentric ring region[6]						- - - - -				Ost87
EAM	—E—		—E—		————		215°	−17°	0.17483117	1.27	1.35		Dr+88b
EAM	—E—		—E—		35°	−19°	216°	−12°	0.17483106	1.16	1.34		Mag90a
AMF	37°	+0°	217°	+8°	37°	−8°	217°	−0°	- - - - -				Lum+90
AM	33°	+25°	211°	+29°	31°	−29°	213°	−25°	- - - - -	1.39	1.38		Dot+92
EA	—E—		—E—		35°	−27°	215°	−22°	0.17483104	1.35[2]	1.36		DeA93
L	————		————		35°	−9°	216°	−2°	0.17483113	1.2	1.2[31]		Ka+02a
S	————		————		36°	−3°	————		- - - - -	1.00	1.54		Dru+08
LO	————		————		33°	−7°	—O—		0.17483118	shape[31]			Dur+11
Synthesis	————		————		35°	−5°	————		0.17483118	1.1	1.3		Synthesis
17 Thetis													
AM	69°	+43°	268°	+55°	88°	−55°	249°	−43°	- - - - -	1.25	1.35[1]		Za+86b
EA	Prograde rotation				—E—		—E—		- - - - -				Lag+95
EAM	—E—		—E—		————		253°	−33°	0.5112699	1.40	1.40		Mic+95
L	58°	+12°	240°	+25°	————		————		0.5110845	1.3	1.0[31]		Tor+03
L*	55°	+10°	236°	+20°	————		————		0.511085	shape[31]			Dur+09
LO	————		236°	+20°	————		————		0.5110845	shape[31]			Dur+11
Synthesis	————		237°	+21°	————		————		0.5110845	1.3	1.0		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
18 Melpomene													
EA	—E—		—E—		0°	−0°	341°	−36°	0.482218				Hof+90
L	———		———		199°	−24°	8°	−37°	0.482142	1.2	1.2[31]		Tor+03
Synthesis	———		———		190°	−20°	355°	−37°	0.482142	1.2	1.2		Synthesis
19 Fortuna													
I	Prograde rotation								- - - - -				Mor77
I	Prograde rotation								- - - - -				Han77
E	Prograde rotation				—E—		—E—		0.310125				Lup+85
R	Concentric ring region[6]								- - - - -				Ost87
EAM	65°	+48°	———		—E—		—E—		0.3101343	1.24	0.94		Dr+88b
E	70°	+50°	250°	+50°	—E—		—E—		0.3101342	1.21	1.1		Mag90a
EAM	68°	+52°	———		—E—		—E—		0.3101343	1.23	0.93		Dru+91
EA	98°	+51°	266°	+48°	—E—		—E—		0.3101340	1.27	1.00		DeA95
AM	65°	+49°	244°	+48°	64°	−48°	245°	−49°	- - - - -	1.445	1.096		Bla+98
L	98°	+58°	277°	+60°	———		———		0.3101342	1.2	1.05[31]		Tor+03
Synthesis	80°	+52°	260°	+52°	—E—		—E—		0.3101342	1.2	1.0		Synthesis
20 Massalia													
A	10°	+78°					190°	−78°	- - - - -				Cha+62
AM	30°	+49°	207°	+51°	27°	−51°	210°	−49°	- - - - -	1.27	1.0[1]		Bar+85
A	30°	+54°	205°	+79°	25°	−79°	210°	−54°	- - - - -	1.25	2.4[2]		McC+85
E	—E—		—E—						0.337419				Lup+85
EA	20°	+80°	200°	+80°	—E—		—E—		0.3373993	1.16			Mag86
E	Prograde rotation				—E—		—E—		- - - - -				Kru+92
EA	31°	+69°	208°	+69°	—E—		—E—		0.3373994	1.27	1.00		Dot+95
E	27°	+38°	207°	+38°	—E—		—E—		0.3373987				Sza+99
L	10°	+45°	189°	+45°	———		———		0.33740475	1.1	1.1[31]		Ka+02a
Synthesis	23°	+59°	203°	+60°	—E—		—E—		0.337399	1.15	1.1		Synthesis
21 Lutetia													
E	Prograde rotation				—E—		—E—		0.340277				Lu+87a
AM	42°	+40°	223°	+48°	43°	−48°	222°	−40°	- - - - -	1.25	1.09		Lu+87c
EAM	55°	+44°	241°	+40°	—E—		—E—		0.3400260	1.30	1.7[2]		Mic92
A	48°	+31°	233°	+38°	53°	−38°	228°	−31°	- - - - -	1.29	1.25		Dot+92
EAM	33°	+9°	214°	+15°	—E—		—E—		0.340244	1.25	2.7		Mic93
EA	41°	+42°			—E—		—E—		0.3400252	1.41	1.08		DeA95
EA	50°	+10°	230°	+10°	—E—		—E—		0.340151	1.22	1.4		Lag+95
EAM	———		240°	+37°	—E—		—E—		0.3404874	1.26	1.15		Mic96a
E	41°	+51°	221°	+51°	—E—		—E—		0.3402446				Sza+99
R	48°	+5°	228°	+13°	———		———		- - - - -	1.25	1.41		Mag+99
L	39°	+3°	220°	+3°	———		———		0.3402272	1.2	1.2[31]		Tor+03
SLO	———		———		52°	−6°	———		0.3403445	shape[31]			Car+10b
S	———		———		45°	−7°	———		- - - - -	1.32	1.09		Dru+10
SLO	———		———		52°	−6°	———			1.23	1.09		Dru+10
Synthesis	———		———		52°	−6°	———		0.3403445	1.25	1.1		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
22 Kalliope													
AM			215°	+45°	35°	−45°			- - - - -	1.34	1.23		Sca+78
AM	13°	+17°	214°	+42°	34°	−42°	193°	−17°	- - - - -	1.34	1.18		Zap+84
EAM			199°	+14°	19°	−11°			0.1728092	1.4	1.18		Mag86
A			203°	+29°	23°	−29°			- - - - -	1.33	1.24		Sur+86
M			201°	+22°	21°	−22°			- - - - -	1.32	1.13		Sur+86
EAM	—E—		—E—		———		194°	−8°	0.17284164	1.32	1.27		Dr+88b
EAM					20°	−23°	195°	+2°	0.1728416	1.6	1.2		Mag90a
EA	—E—		—E—		18°	−23°			0.17284168	1.32	1.18		Mi+90a
AMF	18°	+0°	204°	+23°	24°	−23°	198°	−0°	- - - - -				Lum+90
EAM	—E—		—E—		———		193°	−7°	0.17284164	1.31	1.27		Dru+91
EA	—E—						190°	−1°	0.1728415	1.33	1.27		DeA92
A	10°	+12°	203°	+45°	23°	−45°	190°	−12°	- - - - -	1.32	1.18		Dot+92
EA	—E—		—E—				190°	−1°	0.17284154	1.33	1.27		DeA95
L	———		———		20°	−21°	197°	+6°	0.17284167	1.2	1.2[31]		Ka+02a
LO	———		———		———		196°	+3°	0.17284167	shape[31]			Dur+11
Synthesis	———		———		———		196°	+3°	0.17284167	1.2	1.2		Synthesis
23 Thalia													
A D			Solution curve						- - - - -	1.15[2]			Tan+91
EAM	198°	+72°	354°	+47°	—E—		—E—		0.5133960	1.18	1.45		Mic93
EA	—E—		—E—		15°	−55°	180°	−35°	0.513202	1.28			Lag+95
L	———		———		359°	−55°	———		0.5130	1.1	1.3[31]		Tor+03
Synthesis	—E—		—E—		7°	−55°	———		0.5131	1.2	1.3		Synthesis
24 Themis													
AM			274°	+52°	94°	−52°			- - - - -	1.191	1.148		Bla+98
L	120°	+44°	———		———		———		0.349032	shape[31]			Hi+08
26 Proserpina													
AM			227°	−4°	47°	−4°			- - - - -	1.16	1.40		Bla+00
AM			227°	0°	47°	0°			- - - - -	1.16	1.40		Bla+00
28 Bellona													
AM	93°	+18°	285°	+37°	105°	−37°	273°	−18°	- - - - -	1.31	1.18		Zap+84
EAM	73°	+17°	265°	+43°	—E—		—E—		- - - - -	1.24	1.20		Mic93
L*	———		———			−6°		−6°	0.654494	shape[31]			Dur+09
L*O	———		282°	+6°	102°	−8°	———		0.6544937	shape[31]			Dur+11
Synthesis	———		282°	+6°	102°	−8°	———		0.6544937	shape[31]			Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
29 Amphitrite													
A	165°	+45°	345°	+45°	165°	−45°	345°	−45°	- - - - -	1.14	1.0[1]		Ted+81
A	160°	+53°	320°	+45°	140°	−45°	340°	−53°	- - - - -	1.13	1.00		McC+84
AM	142°	+50°	308°	+40°	128°	−40°	322°	−50°	- - - - -	1.13	1.0[1]		Zap+84
EAM	—E—		—E—		135°	−15°	320°	−25°	0.22458835	1.06	1.06		Mag86
EAM	—E—		—E—		136°	−33°	———		0.2245882	1.13	1.14		Dr+88b
S	—S—		—S—		134°	−36°	—S—		- - - - -	1.22	1.06		Dr+89a
EAM	—E—		—E—		133°	−17°	318°	−25°	0.22458829	1.05	1.16		Mag90a
EA	—E—		—E—		145°	−43°			0.22458832	1.18	1.00		DeA95
L	———		———		138°	−21°	———		0.22458829	1.1	1.1[31]		Ka+02a
Synthesis	———		———		136°	−28°	———		0.2245883	1.1	1.1		Synthesis
30 Urania													
EAM	114°	+34°	293°	+33°					- - - - -	1.5	1.1		Mic96a
L*	107°	+23°	284°	+20°	———		———		0.570299	shape[31]			Dur+09
Synthesis	110°	+25°	288°	+25°	———		———		0.570299	shape[31]			Synthesis
31 Euphrosyne													
AM	186°	+67°	317°	+4°	137°	−4°	6°	−67°	- - - - -	1.12	1.0[1]		Bar+85
A	178°	+72°	315°	+5°	135°	−5°	358°	−72°	- - - - -	1.12	1.00		McC+85
EAM	—E—		—E—		126°	−31°	———		0.2316828	1.14	1.59		Mic93
A D	300°	+75°	282°	+30°	102°	−30°	120°	−75°	- - - - -	1.08			Lic+94
EAM	—E—		—E—		———		273°	−60°	0.2304828	1.09	1.60		Kry+96
Synthesis	—E—		—E—		———		273°	−60°	0.2304828	1.09	1.60		Synthesis
32 Pomona													
AM	91°	+34°	263°	+46°	83°	−46°	271°	−34°	- - - - -	1.34	1.0[1]		Za+86b
EA	103°	+59°	267°	+70°	—E—		—E—		0.393652	1.4			Eri+93
EA	83°	+33°	253°	+43°	—E—		—E—		- - - - -	1.76	1.00		DeA95
EA	89°	+43°	260°	+57°	—E—		—E—		0.393654	1.40	1.00		Dot+95
L	———		267°	+58°	———		———		0.39365287	1.3	1.3[31]		Ka+02a
Synthesis	92°	+45°	262°	+58°	———		———		0.393653	1.3			Synthesis
34 Circe													
AM	113°	+17°					293°	−17°	- - - - -	1.32	1.00		Bla+00
L*	94°	+35°	275°	+51°	———		———		0.507274	shape[31]			Dur+09
LO	94°	+35°	275°	+51°	———		———		0.5072742	shape[31]			Dur+11
Synthesis	94°	+35°	275°	+51°	———		———		0.5072742	shape[31]			Synthesis
36 Atalante													
AM			299°	+19°	119°	−19°			- - - - -	1.282	1.000		Bla+98
37 Fides													
EA	100°	+5°	280°	−5°					0.305573	1.2			Mag86
L	———		———		85°	−26°	264°	−34°	0.3055622	1.1	1.05[31]		Tor+03
L*	89°	+27°	270°	+19°	———		———		0.3055221	shape[31]			Ha+11
Synthesis	98°	+27°	270°	+19°	———		———		0.3055221	1.1	1.05		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0 β_0	λ_0 β_0	λ_0 β_0	λ_0 β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
39 Laetitia									
EA	—E—			280° −66°	0.2144712	shape[9]			Cai56
A	114° +28°			294° −28°	- - - - -				HG+58
EA	—E—			283° −61°	0.2144712	1.7	3.3		Cai60
AM	130° +10°			310° −10°	- - - - -				Geh+62
M	121° +37°			301° −37°	- - - - -	1.64	1.80		Sat76
A	128° +38°	339° +48°	159° −48°	308° −38°	- - - - -	1.53	1.31[2]		McC+84
AM	116° +49°	338° +57°	158° −57°	296° −49°	- - - - -	1.58	2.08		Zap+84
A	111° +56°	365° +70°	185° −70°	291° −56°	- - - - -	1.53	3.1[2]		McC+85
E	Prograde rotation		—E—	—E—	0.21409				Lup+85
EAM	129° +30°	324° +35°	—E—	—E—	0.21409332	1.49	1.49		Mag86
EAM	————	318° +26°	—E—	—E—	0.21409327	1.45	1.48		Dr+88b
EAM	130° +29°	325° +37°	—E—	—E—	0.21409333	1.50	1.50		Mag90a
AMF	125° +19°	317° +26°	137° −26°	305° −19°	- - - - -				Lum+90
EAM	————	319° +28°	—E—	—E—	0.21409330	1.49	1.48		Dru+91
AMF		327° +36°	147° −36°		- - - - -			X[16]	Lum+91
EA		325° +23°	—E—	—E—	0.21409327	1.42	1.10		DeA95
L	————	323° +35°	————	————	0.21409321	1.4	1.4[31]		Ka+02a
O	————	323° +32°	————	————	0.21409325	shape[31]			Dur+11
Synthesis	————	323° +33°	————	————	0.21409325	1.4			Synthesis
40 Harmonia									
A D		Solution curve			- - - - -	1.31[2]			Tan+91
EAM	————	208° +21°	—E—	—E—	0.3712522	1.24	2.07		Mic93
EA	22° +28°	203° +38°	————	————	0.3711872	1.31	1		LGR99
EA	12° +34°	201° +41°	————	————	0.3712535	1.31	1		LGR99
L*	22° +31°	206° +39°	————	————	0.3711867	shape[31]			Ha+11
Synthesis	22° +31°	206° +39°	————	————	0.3711867	1.3			Synthesis
41 Daphne									
AM	15° +36°	157° +28°	195° −36°	337° −28°	- - - - -	1.51	1.00		Bar83
AM	19° +35°	159° +32°	199° −35°	339° −32°	- - - - -	1.44	1.0[1]		Bar+85
EA	—E—	—E—	186° −40°	335° −33°	0.2495001	1.30	1.0		Mag86
AM	18° +48°	135° +43°	198° −48°	315° −43°	- - - - -	1.31	1.16		Za+86b
R		Concentric ring region[6]			- - - - -				Ost87
EAM	—E—	—E—	————	334° −32°	0.2494996	1.28	1.23		Dr+88b
EA	—E—	—E—	197° −36°	344° −38°	0.2494994	1.28	1.00		Mag90a
EAM	—E—	—E—	————	340° −32°	0.2494993	1.25	1.19		Dru+91
EA	—E—	—E—	190° −27°	343° −31°	0.24949931	1.37	1.00		DeA95
L	————	————	196° −31°	————	0.2494993	shape[31]			Ka+02
LO	————	————	198° −32°	————	0.2494992	shape[31]			Dur+11
Synthesis	————	————	197° −32°	————	0.2494992	1.3	1.1		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0 β_0	λ_0 β_0	λ_0 β_0	λ_0 β_0	Sidereal period (days)	Ellipsoidal model a/b b/c	Albedo varieg.	Reference code
42 Isis								
AM		302° +36°	122° −36°		- - - - -	1.419 1.000		Bla+98
EAM	—E—	—E—	117° −5°	288° −16°	0.5665417			Den+98
L	————	————	120° −14°	294° −23°	0.566542	1.1 1.0[31]		Tor+03
L*	106° +40°	302° +28°	————	————	0.565985	shape[31]		Ha+11
Synthesis	106° +40°	302° +28°	————	————	0.565985	1.1 1.0		Synthesis
43 Ariadne								
A	73° +40°	249° +43°	69° −43°	253° −40°	- - - - -	1.69 1.8[2]		McC+84
AM	73° +25°	248° +20°	68° −20°	253° −25°	- - - - -	1.79 1.10		Bar+86
E	—E—	—E—	55° −16°	241° −21°	0.2400784			Mic88
EAM	78° +13°	256° +13°	—E—	—E—	0.2400924	1.40 1.10		Dr+88b
EA	—E—	—E—	68° −14°	251° −16°	0.2400828	1.76 1.01		Mag90a
EAM	—E—	—E—	————	248° −10°	0.2400830	1.60 1.24		Dru+91
EA	—E—	—E—	————	249° −14°	0.2400817	1.59 1.10		DeA92
E	—E—	—E—	Retrograde rotation		- - - - -			Kru+92
AMD	72° +13°	250° +8°	70° −8°	252° −13°	- - - - -	1.84 1.52		Det+92[25]
EAMD		250° +1°	70° −1°		- - - - -	1.0[1] 1.0[1]	X[15]	Det+92[25]
EAMD	73° +25°	248° +20°	68° −20°	253° −25°	- - - - -	shape[14]		Det+92[25]
EAMD	70° +5°			250° −5°	- - - - -	shape[14]		Det+92[25]
E	—E—	—E—	70° −22°	254° −24°	0.24008258			Det+92[25]
EAM	—E—	—E—	68° −22°	253° −28°	0.2400824	1.64 1.16		Mic93
EA	—E—	—E—	————	249° −14°	0.2400817	1.59 1.10		DeA95
EA	—E—	—E—	————	251° −9°	0.2400824	1.68 1.10		Dot+95
E	—E—	—E—	71° −25°	251° −25°	0.2400818			Sza+99
L	————	————	————	253° −15°	0.24008275	1.6 1.2[31]		Ka+02a
S	————	————	————	252° −16°	- - - - -	1.71 1.0		Tan+03
Synthesis	————	————	————	252° −16°	0.240082	1.6 1.1		Synthesis
44 Nysa								
EA		—E—	178° −84°		0.26737846	shape[9]		Cai56
AM	105° +30°			285° −30°	- - - - -			Geh+62
EA		358° +84°	—E—		0.26730938			Cha+62
AM	100° +50°			280° −50°	- - - - -	1.58 1.30		Zap+79
E	100° +60°	265° +55°	—E—	—E—	0.26755902			Tay+83
EA	94° +59°	288° +63°	—E—	—E—	0.26755895			Mag83
AM	99° +49°	295° +54°	115° −54°	279° −49°	- - - - -	1.51 1.18		Zap+84
EAM	105° +57°	300° +61°	—E—	—E—	0.26755902	1.37 1.4		Mag86
AMF	112° +46°	304° +47°	124° −47°	292° −46°	- - - - -			Lum+90
EA	92° +47°	283° +49°	—E—	—E—	0.26755903	1.44 1.13		DeA93
L	98° +58°	————	————	————	0.26755904	shape[31]		Ka+02
S	102° +50°	————	————	————	- - - - -	1.61 1.0		Tan+03
Synthesis	100° +53°	296° +52°	————	————	0.26755903	1.44		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
45 Eugenia													
E	—E—		—E—		115°	−34°	286°	−26°	0.2374645				Tay+88
EAM	—E—		—E—		127°	−44°	———		0.2374646	1.33	1.65		Dr+88b
EAM	—E—		—E—		125°	−35°	296°	−26°	0.2374646	1.36	1.48		Mag90a
AMF	128°	+16°	313°	+25°	133°	−25°	308°	−16°	- - - - -				Lum+90
A D			Solution curve						- - - - -	1.42[2]			Tan+91
EA	—E—		—E—		109°	−27°			0.2374650	1.33	1.23		DeA95
EA			check[5]						- - - - -				Lag+95
EA	———		———		106°	−42°	313°	−41°	0.2374644	1.33	1.4		LGR99
L	———		———		124°	−30°	———		0.23746429	1.4	1.5[31]		Ka+02a
Synthesis	———		———		119°	−34°	301°	−27°	0.2374647	1.36	1.5		Synthesis
47 Aglaja													
EAM	139°	+33°	313°	+19°	—E—		—E—		0.549549	1.21	1.20		Mic96a
Synthesis	139°	+33°	313°	+19°	—E—		—E—		0.549549	1.21	1.20		Synthesis
48 Doris													
AM	113°	+27°					293°	−27°	- - - - -	1.445	1.000		Bla+98
51 Nemausa													
E F	—E—		—E—		133°	−61°	?[4]		0.324368				Kri91
E F	—E—		—E—		166°	−62°	?[4]		- - - - -				Kri92
EA	176°	+62°					356°	−62°	- - - - -	1.15	1.00		DeA95
E F					160°	−68°			0.3242890				Kri97
Synthesis					160°	−64°	365°	−62°	0.3243	1.15	1.0		Synthesis
52 Europa													
A	0°	+37°	203°	+38°	23°	−38°	180°	−37°	- - - - -	1.12	1.0[1]		Bar+86
EAM	17°	+65°	———		—E—		—E—		- - - - -	1.11	2.79		Mic93
EA	—E—		—E—		80°	−55°	250°	−40°	0.2346504	1.21	1.30		Dot+95
EAM	—E—		—E—		84°	−32°	257°	−18°	0.2347019	1.20	1.17		Mic+95
EA	63°	+46°	261°	+60°	———		———		0.2345855	1.19	2.2		LGR99
L	———		———		79°	−57°	246°	−44°	0.23465042	1.2	1.2[31]		Ka+02a
EAM	71°	+31°	262°	+46°	———		———		0.2345813	1.21	1.04		Mic+04
L	67°	+25°	252°	+38°	———		———		0.2345816	1.15	1.3[31]		Mic+04
SL	———		252°	+38°	———		———		0.2345816	1.3			Ma+06
O	———		251°	+35°	———		———		0.2345816	shape[31]			Dur+11
Synthesis	———		252°	+36°	———		———		0.2345816	1.2	1.2		Synthesis
54 Alexandra													
A D			Solution curve						- - - - -	1.3[2]			Tan+91
EA	160°	+45°	290°	+55°	—E—		—E—		0.292766				Bel+93
L	———		307°	+20°	———		———		0.292610	shape[31]			Tor+08
L	———		———		122°	−36°	325°	−37°	0.292639	shape[31]			Tor+08
L	156°	+13°	318°	+23°	———		———		0.29261020	shape[31]			War+08
O	156°	+13°	318°	+23°	———		———		0.29261038	shape[31]			Dur+11
Synthesis	156°	+13°	318°	+23°	———		———		0.29261038	shape[31]			Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0 β_0	λ_0 β_0	λ_0 β_0	λ_0 β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
55 Pandora									
AM	36° +32°	226° +19°	46° −19°	216° −32°	- - - - -	1.27	1.10		Za+86b
EAM	—E—	—E—	———	202° −26°	0.2001593	1.76	1.52		Dr+88b
EAM	32° +40°	224° +32°	—E—	—E—	0.2001596	1.34	1.47		Dru+91
EAM	———	239° +28°	—E—	—E—	0.2001595	1.29	1.32		Mic93
EA	—E—	—E—	50° −18°	216° −34°	0.2001603	1.29	1.25		DeA95
EA	25° +30°	220° +30°	—E—	—E—	0.2001686	1.29	1.1		Lag+95
EAM	28° +48°	232° +42°	—E—	—E—	0.2001685	1.32	1.25		Mic96a
L	———	225° +10°	———	———	0.2001685	1.2	1.2[31]		Tor+03
LO	———	223° +18°	———	———	0.2001685	shape[31]			Dur+11
Synthesis	———	228° +27°	———	———	0.2001685	1.25	1.2		Synthesis
60 Echo									
EAM	95° +34°	275° +42°	—E—	—E—	1.048226	1.50[2]	1.38		Mic93
Synthesis	95° +34°	275° +42°	—E—	—E—	1.048226	1.5	1.4		Synthesis
62 Erato									
L*	87° +22°	269° +23°	———	———	0.384091	shape[31]			Ha+11
63 Ausonia									
AM	130°	310°	130°	310°	- - - - -	2.4	1.0		Zap+83
AM	127° +38°	298° +28°	118° −28°	307° −38°	- - - - -	2.25	1.0[1]		Zap+84
EAM	—E—	—E—	120° −30°	305° −30°	0.3873987	2.06	1.04		Mag86
E	—E—	—E—			0.387230				Lu+87a
EA	—E—	—E—		313° −42°	0.3873992	2.16	1.04		DeA95
EAM	—E—	—E—	122° −26°	310° −40°	0.3874027	2.08	1.05		Mic96a
AM		305° +36°	125° −36°		- - - - -	2.39	1.00		Bla+00
L	———	———	120° −15°	304° −22°	0.3873995	1.9	1.0[31]		Tor+03
S	———	———	119° −29°	———	- - - - -	2.28	1.0		Tan+03
LO	———	———	120° −15°	———	0.3873996	shape[31]			Dur+11
Synthesis	———	———	120° −20°	———	0.3874027	1	9		Synthesis
64 Angelina									
EAM	119° +29°	299° +27°	—E—	—E—	0.3647784	1.38	1.05		Mic93
L*O	137° +14°	317° +17°	———	———	0.364597	shape[31]			Dur+11
Synthesis	130° +20°	310° +20°	———	———	0.364597	1.4	1.0		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
65 Cybele													
EAM	—E—		—E—		26°	−52°	———		0.1661266	1.08	1.74		Dr+88b
EAM	—E—		—E—		25°	−49°	———		0.1683549	1.09	1.69		Dru+91
EA	—E—		—E—		34°	−23°			0.1683552	1.05	1.37		DeA95
Synthesis	—E—		—E—		28°	−41°			0.1683551	1.07			Synthesis
66 Maja													
AM			345°	+50°	165°	−50°			- - - - -	1.660	1.000		Bla+98
AM	156°	+62°					336°	−62°	- - - - -	1.66	1.40		Bla+00
68 Leto													
L*	103°	+43°	290°	+23°	———		———		0.6185612	shape[31]			Ha+11
O	103°	+43°	290°	+23°	———		———		0.6185613	shape[31]			Dur+11
Synthesis	103°	+43°	290°	+23°	———		———		0.6185613	shape[31]			Synthesis
69 Hesperia													
E	131°	+42°	315°	+59°	—E—		—E—		0.2358226				Ve+89b
E					—E—		—E—		- - - - -				Kru+92
EA			243°	+51°	—E—		—E—		0.2356040	1.25	1.45		DeA+95
AM	64°	+39°	250°	+42°	70°	−42°	244°	−39°	- - - - -	1.247	1.250		Bla+98
L	———		———		73°	−45°	———		0.2356333	1.1	1.4[31]		Tor+03
L*	———		250°	+17°	71°	−2°	———		0.2356391	shape[31]			Ha+11
71 Niobe													
AM			274°	+14°	94°	−14°			- - - - -	1.202	1.345		Bla+98
73 Klytia													
L	38°	+75°	237°	+73°	———		———		0.3451277	shape[31]			Mar+08
L*	44°	+83°	266°	+68°	———		———		0.3451279	shape[31]			Ha+11
Synthesis	41°	+79°	252°	+71°	———		———		0.3451278	shape[31]			Synthesis
75 Eurydike													
EAM			253°	+30°					0.2231746	1.19	1.60		Tun+02
76 Freia													
L	139°	+25°	360°	+40°	———		———		0.4153452	shape[31]			Ste+08
L	139°	+14°	320°	+17°	———		———		0.4155442	shape[31]			Mar+12
Synthesis	139°	+14°	320°	+17°	———		———		0.4155442	shape[31]			Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0 β_0	λ_0 β_0	λ_0 β_0	λ_0 β_0	Sidereal period (days)	Ellipsoidal model a/b b/c	Albedo varieg.	Reference code
77 Frigga								
AM	57° +39°			236° −40°	- - - - -	1.224 1.010		Bla+98
79 Eurynome								
EA	64° +45°	226° +52°	—E—	—E—	0.2490706	1.28 2.0[2]		Mi+90a[24]
EA	62° +26°	226° +41°	—E—	—E—	0.2490708	1.24 1.20		DeA93
EA	56° +28°	236° +38°	—E—	—E—	0.2490705	1.25 1.42		DeA+95
EAM	40° +35°	214° +38°	—E—	—E—	0.2490716	1.22 1.22		Mic96a
E	—E—	—E—	65° −36°	245° −36°	0.2490706			Sza+99
L	64° +15°	———	———	———	0.2491071	shape[31]		Tor+08
Synthesis	55° 25°	———	———	———	0.2491071	1.2 1.3		Synthesis
80 Sappho								
R		Concentric ring region[6]			- - - - -			Ost87
L*	———	———	6° −16°	194° −26°	0.584620	shape[31]		Dur+09
LO	———	———	———	194° −26°	0.584620			Dur+11
Synthesis	———	———	———	194° −26°	0.584620	shape[31]		Synthesis
82 Alkmene								
L*	———	———	164° −34°	351° −39°	0.541699	shape[31]		Dur+09
L*	———	———	164° −28°	349° −33°	0.541699	shape[31]		Ha+11
Synthesis	———	———	164° −31°	350° −36°	0.541699	shape[31]		Synthesis
83 Beatrix								
EAM	—E—	—E—	3° −37°	172° −31°	0.4213796	1.26 1.16		Kru+94
EA	—E—	—E—	6° −46°	173° −38°	- - - - -	1.22 1.10		DeA95
Synthesis	—E—	—E—	4° −42°	172° −34°	0.4213796	1.24 1.1		Synthesis
85 Io								
EA	120° +89°	303° +82°	123° −82°	300° −89°	- - - - -	1.18 1.00		Dot+95
EAM[32]	—E—	—E—	—E—	285° −52°	0.28646325	1.15 1.8		Eri+99
EAM[32]	—E—	—E—	108° −46°	290° −16°	0.2864629	1.19		Eri+99
L	———	———	105° −45°	295° −14°	0.2864629	1.1 1.0[31]		Tor+03
LO	———	———	95° −65°	———	0.28644929	shape[31]		Dur+11
Synthesis	———	———	100° −60°	———	0.28644929	1.1 1.0		Synthesis
87 Sylvia								
EAM	89° +52°	288° +40°	—E—	—E—	0.2159852	1.41 1.17		Dr+88b
EAM	66° +67°	296° +59°	—E—	—E—	0.2159851	1.44 1.5		Mag90a
EAM	89° +52°	291° +42°	—E—	—E—	0.2159853	1.43 1.17		Dru+91
EAM	84° +55°	297° +50°	—E—	—E—	0.2159859	1.37 1.41[2]		Mic93
EA	86° +45°		—E—	—E—	0.2159850	1.45 1.05		DeA95
L	71° +66°	———	———	———	0.2159851	1.4 1.1[31]		Ka+02a
SL	71° +66°	———	———	———	0.2159851	1.6		Ma+06
S	96° +39°	———	———	———	- - - - -	1.33 1.16		Dru+08
Synthesis	84° +55°	———	———	———	0.2159853	1.40 1.2		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
88 Thisbe													
AM	32°	+69°	205°	+54°	25°	−54°	212°	−69°	- - - - -	1.13	1.0[1]		Za+86b
EAM	———		129°	+78°	—E—		—E—		0.2517222	1.12	1.30		Dr+88b
EA	40°	+70°	200°	+70°	—E—		—E—		0.2517223	1.13			Mag90a
EAM	———		110°	+58°	—E—		—E—		0.2517222	1.15	1.16		Dru+91
EA			243°	+74°	—E—		—E—		0.2517224	1.11	1.22		DeA95
L	———		207°	+48°	———		———		0.2517208	1.1	1.2[31]		Tor+03
LO	72°	+60°	247°	+50°	———		———		0.251721	shape[31]			Dur+11
Synthesis	72°	+60°	237°	+49°	———		———		0.251721	1.1	1.2		Synthesis
89 Julia													
L*O	———		———		8°	−13°	———		0.474514	shape[31]			Dur+11
Synthesis	———		———		8°	−13°	———		0.474514	shape[31]			Synthesis
93 Minerva													
EA	———		203°	+15°	———		———		0.249087	1.07	1.10		Eri00
EAM	———		189°	+10°	———		———		0.2491288	1.12	1.00		Tun+02
L	———		216°	+21°	———		———		0.249303	shape[31]			Tor+08
L	———		———		49°	−40°	———		0.249297	shape[31]			Tor+08
Synthesis	———		203°	+15°	———		———		0.2493	1.10	1.05		Synthesis
94 Aurora													
L	58°	+16°	242°	+4°	———		———		0.3010912	shape[31]			Mar+11
Synthesis	58°	+16°	242°	+4°	———		———		0.3010912	shape[31]			Synthesis
95 Arethusa													
LO	149°	+33°	———		———		———		0.362592	shape[31]			Dur+11
Synthesis	149°	+33°	———		———		———		0.362592	shape[31]			Synthesis
97 Klotho													
EAM			340°	+8°					1.4632286	1.33	1.10		Tun+02
L*	161°	+40°	359°	+30°	———		———		1.4687917	shape[31]			Ha+11
Synthesis	161°	+40°	359°	+30°	———		———		1.4687917	shape[31]			Synthesis
105 Artemis													
EAM			192°	+68°					0.7729158	1.09	1.53		Tun+02
L	———		240°	+9°	———		234°	−43°	1.5481275	shape[31]			Hi+08
107 Camilla													
EAM	71°	+61°	233°	+74°	—E—		—E—		0.2018306	1.45	1.72		Dr+88b
EAM	74°	+55°	239°	+76°	—E—		—E—		0.2018305	1.46	1.6		Mag90a
EAM	———		229°	+73°	—E—		—E—		0.2018305	1.47	1.49		Dru+91
EA			230°	+69°	—E—		—E—		0.2018307	1.46	1.58		DeA95
L	72°	+51°	———		———		———		0.2018304	1.4	1.2[31]		Tor+03
LO	73°	+54°	———		———		———		0.2018303	shape[31]			Dur+11
Synthesis	73°	+54°	232°	+74°	———		———		0.2018306	1.46	1.6		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
108 Hecuba													
AM	79°	+13°					259°	−13°	- - - - -	1.180	1.101		Bla+98
AM	79°	+6°					259°	−6°	- - - - -	1.180	1.101		Bla+98
110 Lydia													
EAM	24°	+75°	210°	+78°					- - - - -	1.17			Mic96a
L	———		———		149°	−55°	331°	−61°	0.4552416	shape[31]			Dur+07
Synthesis	———		———		149°	−55°	331°	−61°	0.4552416	shape[31]			Synthesis
113 Amalthea													
EAM					70°	−18°			0.4140702	1.45	1.17		Tun+02
115 Thyra													
EA	175°	+60°	330°	+60°	—E—		—E—		0.301565	1.14	1.30		Dot+95
AM	197°	+30°	358°	+35°	17°	−30°	178°	−35°	- - - - -	1.224	1.088		Bla+98
EAM	———		———		———		182°	−43°	0.3017940	1.21	1.03		Mic+03
EAM	7°	+34°	———		———		———		0.3017257	1.23	1.03		Mic+04
L	23°	+33°	———		———		———		0.3016652	1.1	1.1[31]		Mic+04
Synthesis	15°	+34°	———		———		———		0.30169	1.2	1		Synthesis
119 Althaea													
EAM					21°	−77°			0.4783486	1.29	1.33		Tun+02
L*	———		———			−62°		−62°	0.477713				Dur+09
L*	———		———		181°	−61°	339°	−67°	0.477714	shape[31]			Ha+11
121 Hermione													
EA	163°	+12°	342°	+30°	162°	−30°	343°	−12°	- - - - -	1.10	1.00		DeA95
AM	40°	+32°					220°	−32°	- - - - -	1.294	1.288		Bla+96
AM			240°	+42°	60°	−42°			- - - - -	1.294	1.393		Bla+98
122 Gerda													
AM	26°	+31°					190°	−39°	- - - - -	1.21	0.94		She+09
125 Liberatrix													
EAM	80°	+74°	———		—E—		—E—		0.1653422	1.28	2.68		Dr+88b
E		+70°		+70°	—E—		—E—		0.1653425				Mag90a
EAM	———		228°	+71°	—E—		—E—		0.1653420	1.35	1.23		Dru+91
EA	15°	+47°	181°	+53°	—E—		—E—		0.1653418	1.55	1.10		DeA95
L	95°	+68°	280°	+74°	———		———		0.1653416	shape[31]			Dur+07
Synthesis	95°	+68°	280°	+74°	———		———		0.1653416	shape[31]			Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0 β_0	λ_0 β_0	λ_0 β_0	λ_0 β_0	Sidereal period (days)	Ellipsoidal model a/b b/c	Albedo varieg.	Reference code
127 Johanna								
L	————	————	98° −59°	261° −69°	0.5333142	shape[31]		Mar+12
Synthesis	————	————	98° −59°	261° −69°	0.5333142	shape[31]		Synthesis
129 Antigone								
AM	331° +30°	133° +48°	313° −48°	151° −30°	- - - - -	1.37 1.0[1]		Bar+85
EA	20° +50°	180° +72°	—E—	—E—	0.2065566	1.27 1.0		Mag86
EAM	————	196° +64°	—E—	—E—	0.2065486	1.27 1.05		Dr+88b
EA	38° +27°	202° +53°	—E—	—E—	0.2065485	1.32 1.02		Mag90a
EAM	————	195° +65°	—E—	—E—	0.2065486	1.23 1.07		Dru+91
AM	42° +36°	208° +68°	18° −68°	222° −36°	- - - - -	1.45 1.05		Dot+92
EA		194° +72°	—E—	—E—	0.2065483	1.32 1.01		DeA95
L	————	207° +58°	————	————	0.2065480	1.3 1.0[31]		Tor+03
S	————	202° +52°	————	————	- - - - -	1.22 1.48		Dru+09
LO	————	207° +58°	————	————	0.2065480	shape[31]		Dur+11
Synthesis	————	204° +55°	————	————	0.2065484	1.3 1.1		Synthesis
130 Elektra								
EAM	—E—	—E—	190° −81°	————	0.2176951	1.29 1.63		Dr+88b
EAM	—E—	—E—	180° −85°	240° −40°	0.2176942	1.41 1.2		Mag90a
EAM	—E—	—E—	344° −86°	246° −32°	0.2176942	1.32 1.06		Mic93
EA	—E—	—E—	192° −83°		0.2176950	1.55 1.45		DeA95
L	————	————	64° −88°	————	0.2176943	shape[31]		Dur+07
SL	————	————	64° −88°	————	0.2176943	shape[31]		Ma+06
L	————	————	160° −85°	————	0.2176942	shape[31]		Tor+08
LO	————	————	64° −88°	————	0.2176943	shape[31]		Dur+11
Synthesis	————	————	64° −88°	————	0.2176943	1.2 1.1		Synthesis
132 Aethra								
L*	————	337° +70°	————	————	0.2153448	shape[31]		Dur+09
L*	————	326° +67°	————	————	0.2153446	shape[31]		Ha+11
Synthesis	————	332° +69°	————	————	0.2153447	shape[31]		Synthesis
133 Cyrene								
E	Prograde rotation		—E—	—E—	0.5295			Har+84
135 Hertha								
A D		Solution curve			- - - - -	1.23		Tan+91
AM	135° +46°	310° +43°	130° −43°	315° −46°	- - - - -	1.34 1.22		Dot+92[22]
EAM	—E—	—E—	126° −28°	310° −31°	0.347818	1.36 1.20		Mic93
EA	106° +2°			286° −2°	0.350238	1.16 1.14		Lag+95
EAM	118° +52°	291° +47°			- - - - -	1.25 1.24		Mic96a
L	96° +58°	274° +53°	————	————	0.350025	1.1 1.4[31]		Tor+03
Synthesis	100° +52°	292° +50°	————	————	0.350238	1.15 1.2		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
136 Austria													
L*		+63°		+63°	———		———		0.479025	shape[31]			Dur+09
137 Meliboea													
AM	149°	+8°					329°	−8°	- - - - -	1.18	1.11		Bla+00
139 Juewa													
EAM	117°	+50°	———		—E—		—E—		- - - - -	1.21	1.68		Mic93
144 Vibilia													
R			Concentric ring region[6]						- - - - -				Ost87
146 Lucina													
L*	———		———		139°	−14°	305°	−41°	0.773082	shape[31]			Dur+09
Synthesis	———		———		139°	−14°	305°	−41°	0.773082	shape[31]			Synthesis
150 Nuwa													
AM			253°	+1°	73°	−1°			- - - - -	1.116	1.043		Bla+96
AM			257°	+1°	77°	−1°			- - - - -	1.097	1.015		Bla+98
AM			253°	+27°	73°	−27°			- - - - -	1.097	1.015		Bla+98
152 Atala													
L*	199°	+62°	347°	+47°	———		———		0.260197	shape[31]			Dur+09
L*	199°	+61°	347°	+46°	———		———		0.260197	shape[31]			Ha+11
LO	—O—		347°	+46°	———		———		0.260197	shape[31]			Dur+11
Synthesis	—O—		347°	+46°	———		———		0.260197	shape[31]			Synthesis
153 Hilda													
AM	149°	+29°					329°	−32°	- - - - -	1.19	1.32		She+09
158 Koronis													
EAM	———		———		19°	−69°	201°	−72°	0.5919043	1.5	1.7		Sli+03
L	———		———		35°	−65°	220°	−68°	0.5919037	1.4	1.5		Sli+03
LO	———		———		30°	−64°	—O—		0.5919037	shape[31]			Dur+11
Synthesis	———		———		33°	−65°	—O—		0.5919037	1.5	1.6		Synthesis
160 Una													
L	———		———		125°	−33°	308°	−41°	0.4597157	shape[31]			Mar+09
Synthesis	———		———		125°	−33°	308°	−41°	0.4597157	shape[31]			Synthesis
161 Athor													
AM	1°	+48°	209°	+47°	29°	−47°	181°	−48°	- - - - -	1.367	0.850		Bla+98
L*	———		170°	+4°	———		350°	−6°	0.3033370	shape[31]			Lor+12
162 Laurentia													
L*	139°	+64°	313°	+51°	———		———		0.494549	shape[31]			Ha+11
163 Erigone													
L*	———		———			−60°		−60°	0.67251				Ha+11

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
165 Loreley													
AM			339°	+65°	159°	−65°			- - - - -	1.191	1.274		Bla+98
L	———		346°	+29°	———		———		0.3011112	shape[31]			Dur+07
LO	174°	+29°	—O—		———		———		0.3010161	shape[31]			Dur+11
Synthesis	174°	+29°	—O—		———		———		0.3011161	shape[31]			Synthesis
167 Urda													
EAM	———		———		30°	−73°	220°	−69°	0.5442240	1.3	1.0		Sli+03
L	———		———		40°	−75°	225°	−73°	0.5442238	1.2	1.0		Sli+03
L*	———		———		107°	−69°	249°	−68°	0.544222	shape[31]			War+08
LO	———		———		—O—		249°	−68°	0.544222	shape[31]			Dur+11
Synthesis	———		———		60°	−70°	235°	−70°	0.544222	1.3	1.0		Synthesis
173 Ino													
EAM	—E—		—E—		198°	−21°	356°	−47°	- - - - -	1.23	1.69		Mic93
EA	—E—		—E—		186°	−22°	365°	−21°	- - - - -	1.12	1.06		DeA95
L	———		———		178°	−14°	344°	−30°	0.2548546	1.1	1.1[31]		Mic+05
Synthesis	———		———		178°	−14°	344°	−30°	0.2548546	1.1	1.1		Synthesis
174 Phaedra													
L	———		265°	+5°	———		———		0.2395937	shape[31]			Mar+11
L*	94°	+36°	266°	+14°	———		———		0.239593	shape[31]			Ha+11
Synthesis	———		265°	+5°	———		———		0.2395937	shape[31]			Synthesis
176 Iduna													
AM	85°	+36°					265°	−36°	- - - - -	1.39	1.28		Bla+00
182 Elsa													
L*	———		———		72°	−84°	224°	−82°	3.3403	shape[31]			Dur+09
184 Dejopeja													
L	18°	+54°	201°	+52°	———		———		0.2683796	shape[31]			Mar+07
L*	14°	+51°	196°	+50°	———		———		0.2683799	shape[31]			Dur+09
Synthesis	16°	+53°	198°	+51°	———		———		0.2683797	shape[31]			Synthesis
187 Lamberta													
L*	———		———			−58°		−58°	0.444459				Ha+11
188 Menippe													
L*	32°	+48°	198°	+25°	———		———		0.49902	shape[31]			Ha+11
190 Ismene													
AM	118°	+23°					298°	−30°	- - - - -	1.13	1.21		She+09
192 Nausikaa													
A	130°	+40°					310°	−40°	- - - - -				Sc+76a
EA	—E—		—E—		———		325°	−45°	0.567670	1.35	1.50		Dot+95
L	131°	+36°	———		———		306°	−7°	0.5676058	1.3	1.1[31]		Ka+02a
SL	———		326°	+33°	———		———		0.5675708	1.51			Ma+06
Synthesis	———		326°	+33°	———		———		0.5675708	1.51			Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
196 Philomela													
EAM	78°	+26°	266°	+24°	86°	−24°	258°	−26°	- - - - -	1.58	1.06		Mic92
EAM	—E—		—E—		99°	−16°	273°	−22°	- - - - -	1.33	1.17		Mic93
A D	102°	+26°	287°	+26°	107°	−26°	282°	−26°	- - - - -	1.50			Lic+94
EA	105°	+20°					285°	−20°	- - - - -	1.40	1.00		DeA95
EAM	———		277°	+20°	—E—		—E—		0.3475556[2]	1.32	1.16		Kry+96
AM			278°	+20°	98°	−20°			- - - - -	1.472	0.914		Bla+98
L	———		———		111°	−41°	276°	−49°	0.3472011	shape[31]			Dur+07
Synthesis	———		———		111°	−41°	276°	−49°	0.3475556	1.3	1.2		Synthesis
201 Penelope													
EAM	78°	−3°	258°	+4°					0.1561283[2]	1.47	1.22		Dr+88b
EAM	—E—		—E—		80°	−35°	260°	−25°	0.1561443	1.50	1.23		Mag90a
EAM	74°	−2°	———						0.1561287	1.53	1.24		Dru+91
EAM					———		261°	−34°	0.1561440	1.55	1.34		Dru+91
EAM	—E—		—E—		85°	−40°	260°	−25°	0.1561439	1.42	1.3		Eri+93
EAM	—E—		—E—		———		258°	−22°	0.1561433	1.32	1.06		Mic93
EA	—E—		—E—		93°	−14°	———		0.15614438	1.65	1.20		DeA95
EAM	—E—		—E—		84°	−39°	260°	−20°	0.1561439	1.49	1.20		Mic96a
EAM					84°	−32°			0.1561401	1.51	1.24		Tun+02
L	———		———		84°	−15°	262°	−1°	0.1561439	1.5	1.1[31]		Tor+03
Synthesis	—E—		—E—		85°	−29°	260°	−21°	0.1561439	1.5	1.2		Synthesis
208 Lacrimosa													
EAM	———		———		154°	−62°	342°	−64°	0.5865383	1.5	2.3		Sli+03
L	———		———		170°	−68°	350°	−71°	0.5865383	1.2	1.2		Sli+03
LO	———		———		176°	−68°	20°	−75°	0.586538	shape[31]			Dur+11
Synthesis	———		———		167°	−66°	357°	−70°	0.586538	1.3			Synthesis
216 Kleopatra													
EA	71°	+21°	234°	+38°	—E—		—E—		0.2243864				Mag83
A	67°	+15°	231°	+31°	51°	−31°	247°	−15°	- - - - -	2.83			Zap+84
E	71°	+21°	234°	+38°	—E—		—E—		- - - - -				Kos86
EA	72°	+20°	235°	+34°	—E—		—E—		0.2243865	2.78	1.5[2]		Mag86
E					—E—		—E—		0.22438596				Lu+87a
EAM	69°	+10°	———		—E—		—E—		0.2243870	2.54	1.32		Dr+88b
EAM	71°	+19°	236°	+34°	—E—		—E—		0.2243868	2.71	1.30		Mag90a
EAM	69°	+10°	———		—E—		—E—		0.2243868	2.56	1.33		Dru+91
AM	78°	+25°	229°	+45°	49°	−45°	258°	−25°	- - - - -	2.80	1.36		Dot+92
EA	72°	+8°			—E—		—E—		0.22438654	2.54	1.20		DeA95
S	72°	+16°	———		———		———		- - - - -				Tan+03
Synthesis	72°	+16°	———		—E—		—E—		0.2243867	2.6	1.3		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
218 Bianca													
EAM			340°	+60°					- - - - -	1.20	1.33		Kry+96
L	———		305°	+17°	121°	−10°	———		0.394499	shape[31]			Dur+07
Synthesis	———		305°	+17°	121°	−10°	———		0.394499	shape[31]			Synthesis
221 Eos													
AM	72°	+20°					252°	−22°	- - - - -	1.18	1.27		She+09
225 Henrietta													
EAM	—E—		—E—		———		241°	−56°	- - - - -	1.27	1.89		Mic93
EAM	135°	+13°							- - - - -	1.23	1.08		Mic+00
230 Athamantis													
AM	91°	+44°	240°	+51°	60°	−51°	271°	−44°	- - - - -	1.318	1.195		Bla+98
L	74°	+27°	238°	+28°	———		———		0.999354	1.1	1.1[31]		Tor+03
Synthesis	83°	+36°	239°	+40°	———		———		0.999354	1.1	1.1		Synthesis
233 Asterope													
L*		+49°		+49°	———		———		0.820754				Ha+11
236 Honoria													
AM			358°	+66°	178°	−66°			- - - - -	1.224	1.142		Bla+96[34]
238 Hypatia													
EA	139°	+27°	337°	+50°	157°	−50°	319°	−27°	- - - - -	1.38	1.00		DeA95
243 Ida													
EA	—E—		—E—		75°	−56°	264°	−64°	0.1930680	1.81	1.18		Bin+93
EAM	—E—		—E—		81°	−55°	263°	−56°	0.1930680	1.81	1.25	X	Bin+93
AMF					67°	−47°	247°	−47°	- - - - -	1.88	1.04	X	Bin+93
EAM	—E—		—E—		71°	−52°	252°	−54°	0.1930680	1.78	1.10	X	Bin+93
EAM	—E—		—E—		83°	−62°	266°	−64°	0.1930680	1.86	1.31		Bin+93[27]
AM					81°	−52°	264°	−54°	- - - - -	2.04	1.15		Bin+93
C	—C—		—C—		—C—		262°	−68°	- - - - -				Da+94b
C	—C—		—C—		—C—		262°	−67°	0.1930680				Da+96
L	———		———		85°	−47°	262°	−55°	0.19306825	shape[31]			Ka+01
Synthesis	—C—		—C—		—C—		262°	−68°	0.1930680	1.8	1.2		Synthesis
250 Bettina													
EAM	—E—		—E—		104°	−16°	———		0.2106225	1.32	1.38		Dru+91
AM	96°	+46°	283°	+21°	103°	−21°	276°	−46°	- - - - -	1.51	1.01		Dot+92[22]
EAM	—E—		—E—		85°	−9°	260°	−35°	0.2106218	1.33	1.66		Mic92
EAM	—E—		—E—		99°	−16°	272°	−48°	0.2106014	1.33	1.3		Eri+93
EAM	—E—		—E—		102°	−30°	272°	−55°	0.2106224	1.36	1.34		Mic93
EA	—E—		—E—				272°	−32°	0.2106016	1.45	1.05		DeA95
EA	—E—		—E—		106°	−11°			0.2106219	1.45	1.05		DeA95
EA			check[5]						- - - - -				Lag+95
AM			275°	+1°	95°	−1°			- - - - -	1.74	1.58		Bla+00
L	100°	+17°	———		———		282°	−12°	0.2106006	1.3	1.0[31]		Tor+03

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950)								Sidereal period	Ellipsoidal model		Albedo varieg.	Reference code
	λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	(days)	a/b	b/c		
258 Tyche													
AM	72°	+20°	222°	+40°	42°	−40°	252°	−20°	- - - - -	1.51	1.25		Bla+00
L*	———		———		40°	−9°	224°	−4°	0.418336	shape[31]			Ha+11
Synthesis	———		———		40°	−9°	224°	−4°	0.418336	shape[31]			Synthesis
263 Dresda													
EAM	100°	+70°	276°	+73°	———		———		0.7005792	1.5	1.7		Sli+09
L	105°	+76°	285°	+80°	———		———		0.7005779	1.3	1.1		Sli+09
Synthesis	103°	+73°	282°	+76°	———		———		0.7005789	1.4	1.4		Synthesis
264 Libussa													
L*	157°	+18°	———		———		338°	−9°	0.384497	shape[31]			Ha+11
270 Anahitia													
EA	———		300°	+65°	———		———		0.6268967	1.26	1.24		Eri00
EAM	———		285°	+53°	———		———		0.6269955	1.24	1.31		Tun+02
Synthesis	———		293°	+59°	———		———		0.6269	1.25	1.28		Synthesis
272 Antonia													
L*	———		———			−70°		−70°	0.1606167				Ha+11
276 Adelheid													
L	———		———		9°	−4°	198°	−20°	0.2633001	shape[31]			Mar+07
LO	———		———		9°	−4°	198°	−20°	0.2633000	shape[31]			Dur+11
Synthesis	———		———		9°	−4°	198°	−20°	0.2633001	shape[31]			Synthesis
277 Elvira													
EAM	———		———		56°	−78°	251°	−77°	1.2371719	1.5	1.9		Sli+03
L	———		———		50°	−79°	240°	−79°	1.2371733	1.3	1.2		Sli+03
EAM	———		———		73°	−74°	256°	−72°	1.2371730	1.5	1.5		Sli+09
L	———		———		50°	−80°	244°	−81°	1.2371742	1.3	1.2		Sli+09
L*	———		———		121°	−84°	———		1.237175	shape[31]			Ha+11
Synthesis	———		———		64°	−77°	251°	−76°	1.2371741	1.4	1.3		Synthesis
278 Paulina													
L*	123°	+45°	311°	+28°	———		———		0.270578	shape[31]			Dur+09
L*	118°	+38°	307°	+31°	———		———		0.270578	shape[31]			Ha+11
Synthesis	120°	+41°	309°	+30°	———		———		0.270578	shape[31]			Synthesis
281 Lucretia													
A		+90°		+90°		−90°		−90°	- - - - -				Tay+76
L*	———		———			−54°		−54°	0.1812379				Ha+11
L	———		———		148°	−72°	333°	−78°	0.1812380	shape[31]			Kry13
Synthesis	———		———		148°	−72°	333°	−78°	0.1812380	shape[31]			Synthesis
283 Emma													
L	80°	+37°	261°	+28°	———		———		0.2873008	1.4	1.0		Mic+06
Synthesis	80°	+37°	261°	+28°	———		———		0.2873008	1.4	1.0		Synthesis
287 Nephthys													
AM	99°	+54°					279°	−54°	- - - - -	1.306	1.207		Bla+96[34]

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
291 Alice													
EAM	66°	+54°	247°	+55°					- - - - -	1.30	1.20		Kry+96
L	70°	+56°	253°	+54°	———		———		0.1798338	shape[31]			Kry+08
L*	69°	+51°	249°	+56°	———		———		0.1798338	shape[31]			Ha+11
L	67°	+56°	250°	+56°	———		———		0.1798338	shape[31]			Kry13
Synthesis	67°	+56°	250°	+56°	———		———		0.1798338	shape[31]			Synthesis
302 Clarissa													
L*	———		———		28°	−72°	190°	−72°	0.603196	shape[31]			Ha+11
O	———		———		28°	−72°	—O—		0.603196	shape[31]			Dur+11
Synthesis	———		———		28°	−72°	—O—		0.603196	shape[31]			Synthesis
306 Unitas													
L	———		———		79°	−35°	254°	−18°	0.3641145	shape[31]			Dur+07
O	———		———		79°	−35°	—O—		0.3641145				Dur+11
Synthesis	———		———		79°	−35°	—O—		0.3641145	shape[31]			Synthesis
310 Margarita													
L*	———		———		42°	−33°	225°	−35°	0.502958	shape[31]			Ha+11
Synthesis	———		———		42°	−33°	225°	−35°	0.502958	shape[31]			Synthesis
311 Claudia													
EAM	24°	+31°	207°	+38°	———		———		0.3138073	1.9	0.9		Sli+03
L	24°	+48°	209°	+48°	———		———		0.3138078	1.7	1.2		Sli+03
L*	30°	+40°	214°	+43°	———		———		0.3138075	shape[31]			Ha+11
Synthesis	26°	+40°	210°	+43°	———		———		0.3138075	1.8	1.0		Synthesis
312 Pierretta													
L*	———		———			−52°		−52°	0.425320				Dur+09
L*	———		———		82°	−39°	256°	−58°	0.425318				Ha+11
313 Chaldaea													
L*		+33°		+33°	———		———		0.349580				Ha+11
321 Florentina													
EAM	———		———		96°	−63°	266°	−67°	0.11961940	1.5	1.6		Sli+03
L	———		———		91°	−60°	264°	−63°	0.11961941	1.4	1.4		Sli+03
Synthesis	———		———		94°	−62°	265°	−65°	0.11961941	1.5	1.5		Synthesis
324 Bamberga													
S	———		———		177°	−62°	———		- - - - -	1.1	1.0		Dru+08
334 Chicago													
EAM	13°	+32°	188°	+42°	—E—		—E—		0.383246	1.68	1.06		Mic93
AM	18°	+46°	180°	+59°	0°	−59°	198°	−46°	- - - - -	2.089	1.742		Bla+98
Synthesis	15°	+35°	184°	+50°	—E—		—E—		0.383246	1.88			Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
335 Roberta													
AM	80°	+15°	258°	+25°	78°	−25°	260°	−15°	- - - - -	2.09	1.14		Bla+00
336 Lacadiera													
L*	37°	+54°	194°	+39°	———		———		0.570646	shape[31]			Ha+11
337 Devosa													
EAM	—E—		—E—		———		199°	−51°	0.1938078	1.24	1.34		Mic92
EAM	———		199°	+59°	—E—		—E—		0.1931106	1.20	1.79		Mic93
EA	—E—		—E—				193°	−73°	0.1938078	1.30	1.30		DeA95
L	———		209°	+43°	———		———		0.1939031	1.2	1.5[31]		Tor+03
Synthesis	———		204°	+51°	———		195°	−62°	0.1938078	1.25	1.56		Synthesis
338 Budrosa													
A	152°	+24°	321°	+33°	141°	−33°	332°	−24°	- - - - -	1.5			GiH+95
EAM	172°	+16°	———		———		———		0.1916437	1.54	1.20		Tun+02
Synthesis	162°	+20°	———		———		———		0.1916437	1.54	1.20		Synthesis
340 Eduarda													
L*	———		———		18°	−47°	188°	−43°	0.333589	shape[31]			Ha+11
349 Dembowska													
E	150°	+25°	330°	+5°	—E—		—E—		0.1958834	<1.3			Mag86
AM	163°	+49°	330°	+29°	150°	−29°	343°	−49°	- - - - -	1.28	1.15		Za+86b
E					—E—		—E—		0.195895				Lu+87a
EAM	153°	+35°	———		—E—		—E—		0.19588337	1.30	1.12		Dr+88b
EAM	157°	+30°	331°	+15°	—E—		—E—		0.1958835	1.29	1.11		Mag90a
AMF	148°	+35°	180°	+28°	0°	−28°	328°	−35°	- - - - -				Lum+90
EAM	153°	+36°	———		—E—		—E—		0.19588333	1.30	1.13		Dru+91
EA	152°	+40°			—E—		—E—		0.1958841	1.35	1.10		DeA95
L	150°	+23°	329°	0°	———		———		0.195884	1.3	1.4[31]		Tor+03
Synthesis	153°	+34°	330°	+12°	———		———		0.1958836	1.31	1.12		Synthesis
350 Ornamenta													
L	———		———		———		184°	−29°	0.3825172	shape[31]			Mar+09a
Synthesis	———		———		———		184°	−29°	0.3825172	shape[31]			Synthesis
352 Gisela													
AM			213°	+53°	33°	−53°			- - - - -	1.47	1.38		Bla+00
L	———		———		16°	−40°	201°	−43°	0.3116700	shape[31]			Kry13
Synthesis	———		———		16°	−40°	201°	−43°	0.3116700	shape[31]			Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
354 Eleonora													
EA			360°	+35°	—E—				- - - - -				Lup+81
A	132°	+45°	357°	+38°	177°	−38°	312°	−45°	- - - - -	1.36	1.0[1]		Zap+84
A	137°	+44°	363°	+28°	183°	−28°	317°	−44°	- - - - -	1.35	1.0[1]		Bur+85
A			355°	+36°	175°	−36°			- - - - -				Pii+85
EA	159°	+22°	339°	+2°	—E—		—E—		0.1782160	1.23	1.0		Mag86
EAM	170°	+39°	366°	+2°	—E—		—E—		0.17821593	1.17	1.24		Dr+88b
EAM	148°	+35°	350°	+21°	—E—		—E—		0.1782161	1.21	1.11		Mag90a
EAM	———		364°	+9°	—E—		—E—		0.17821596	1.17	1.20		Dru+91
EA			365°	+22°	—E—		—E—		0.1782158	1.26	1.00		DeA95
L [32]	———		356°	+20°	———		———		0.17821583	1.2	1.1[31]		Ka+02a
L*	144°	+54°	———		———		———		0.1782161	shape[31]			Ha+11
Synthesis	144°	+54°	———		———		———		0.1782161	1.21	1.1		Synthesis
355 Gabriella													
L*		+69°		+69°	———		———		0.201208	shape[31]			Dur+09
L*	197°	+70°	341°	+78°	———		———		0.2012079	shape[31]			Ha+11
L	159°	+88°	341°	+83°	———		———		0.20120808	shape[31]			Mar+12
Synthesis	159°	+88°	341°	+83°	———		———		0.20120808	shape[31]			Synthesis
356 Liguria													
R			Concentric ring region[6]						- - - - -				Ost87
360 Carlova													
EA	108°	+51°	337°	+47°	157°	−47°	288°	−51°	- - - - -	1.57	1.00		Dot+95
EAM[32]	105°	+47°	———		—E—		—E—		0.2578997	1.42	1.52		Mic+00
L*	129°	+65°	350°	+55°	———		———		0.2578998	shape[31]			Dur+09
Synthesis	115°	+55°	345°	+52°	———		———		0.2578998	1.45	1.25		Synthesis
367 Amicitia													
L	30°	+52°	217°	+59°	———		———		0.2106255	shape[31]			Kry+08
L*	21°	+32°	203°	+38°	———		———		0.2106258	shape[31]			Ha+11
L	23°	+50°	208°	+56°	———		———		0.2106257	shape[31]			Kry13
Synthesis	23°	+50°	208°	+56°	———		———		0.2106257	shape[31]			Synthesis
372 Palma													
AM	44°	+78°	241°	+7°	61°	−7°	224°	−78°	- - - - -	1.202	1.066		Bla+98
L	———		———		68°	+2°	———		0.35796	1.1	1.3[31]		Tor+03
L*	44°	+17°	———		———		221°	−47°	0.3575787	shape[31]			Ha+11
O	44°	+17°	———		———		221°	−47°	0.3575787	shape[31]			Dur+11
376 Geometria													
EAM	50°	+36°	230°	+38°					- - - - -	1.35	1.70		Kry+96
L	———		———		57°	−22°	240°	−35°	0.3219775	1.0	1.0[31]		Mic+05
L	68°	+2°	———		———		———		0.321251	shape[31]			Tor+08
L*	63°	+53°	239°	+45°	———		———		0.3212904	shape[31]			Ha+11
Synthesis	63°	+53°	239°	+45°	———		———		0.3212904	1.3			Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
377 Campania													
AM	86°	+3°	266°	0°	86°	0°	266°	−3°	- - - - -	1.318	0.898		Bla+96[34]
L	47°	+67°	196°	+66°	———		———		0.4860167	shape[31]			Mar+08
Synthesis	47°	+67°	196°	+66°	———		———		0.4860167	shape[31]			Synthesis
378 Holmia													
L	130°	+60°	286°	+76°	———		———		0.1850177	shape[31]			Mar+08
Synthesis	130°	+60°	286°	+76°	———		———		0.1850177	shape[31]			Synthesis
382 Dodona													
EAM[32]	88°	+68°	———		———		———		0.17138450	1.54	1.33		Mic+04
L	83°	+64°	248°	+55°	———		———		0.17138442	1.4	1.3[31]		Mic+04
Synthesis	86°	+66°	———		———		———		0.171384	1.5	1.3		Synthesis
386 Siegena													
AM	56°	+14°					236°	−14°	- - - - -	1.116	0.776		Bla+98
L	———		289°	+25°	104°	−10°	———		0.40687625	shape[31]			Mar+12
Synthesis	———		289°	+25°	104°	−10°	———		0.40687625	shape[31]			Synthesis
389 Industria													
EAM	—E—		—E—		98°	−55°	314°	−50°	- - - - -	1.26	1.38		Mic93
AM			307°	+52°	127°	−52°			- - - - -	1.393	1.245		Bla+98
390 Alma													
L*	———		———			−64°		−64°	0.155882				Dur+09
L*	———		———			−60°		−60°	0.1558816				Ha+11
394 Arduina													
L*	———		———			−71°		−71°	0.69258				Dur+09
399 Persephone													
L**	36°	+63°	———		———		———		0.381099	shape[31]			Ha+11
400 Ducrosa													
L*	158°	+62°	328°	+56°	———		———		0.286162	shape[31]			Ha+11
409 Aspasia													
AM	73°	+48°	216°	+35°	36°	−35°	253°	−48°	- - - - -	1.137	1.080		Bla+98
L*	3°	+30°	177°	+15°	———		———		0.3758939	shape[31]			War+08
O	3°	+30°	—O—		———		———		0.3758939				Dur+11
Synthesis	3°	+30°	—O—		———		———		- - - - -	1.3	1.0		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
411 Xanthe													
AM	58°	+40°					240°	−55°	- - - - -	1.13	1.77		She+09
413 Edburga													
L*	———		———		———		202°	−45°	0.657146	shape[31]			Ha+11
416 Vaticana													
EAM[32]	132°	+58°	310°	+22°	—E—		—E—		0.2238486	1.50[2]	1.19[2]		Mic+00
L*	———		291°	+12°	———		———		0.2238165	shape[31]			Dur+09
Synthesis	———		300°	+17°	———		———		0.2238165	1.5	1.2		Synthesis
417 Suevia													
L	13°	+23°	186°	+20°	———		———		0.2924367	shape[31]			Mar+12
Synthesis	13°	+23°	186°	+20°	———		———		0.2924367	shape[31]			Synthesis
419 Aurelia													
AM			192°	+34°	13°	−34°			- - - - -	1.28	1.16		Bla+00
423 Diotima													
AM	170°	+63°	345°	+31°	165°	−31°	350°	−63°	- - - - -	1.14	1.50		Za+86b
EA	140°	+55°	———		—E—		—E—		0.1989448	1.16	1.05		Dot+95
SL	———		353°	+2°	———		———		0.1989740	1.08			Ma+06
L	———		351°	+4°	———		———		0.1989740	shape[31]			Dur+07
Synthesis	———		352°	+3°	———		———		0.1989740	shape[31]			Synthesis
432 Pythia													
AM	121°	+65°					301°	−65°	- - - - -	1.37	1.27		Bla+00

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0 β_0	λ_0 β_0	λ_0 β_0	λ_0 β_0	Sidereal period (days)	Ellipsoidal model a/b b/c	Albedo varieg.	Reference code
433 Eros								
V	29° +22°		—V—		- - - - -			Zes32
A	4° +45°		184° −45°		- - - - -			Ros32
AM	2° +53°		182° −53°		- - - - -	1.79 1.18		Kru+36
V A		—V—	169° −62°		- - - - -			Wat37
VEA		moving[3]	—E—		0.2195937			Sto40
EA	−7° +13°		—E—		0.21959390			Bey53
EA	10° +46°		—E—		0.21959386	4.0 1.0[1]		Cai56
E	13° +28°		—E—		- - - - -			Ves71
A	17° +10°				0.21959			Sc+76b
A	15° +9°				- - - - -	2.3		Mi+76
E	16° +12°		—E—		0.219599	shape[8]		Dun76
A	moving[3]				- - - - -	4.0 1.25		Che+77
AM	15° +20°				- - - - -	2.33 1.00		Lum+81
S	23° +37°		—S—		- - - - -	2.79 1.03		Dr+85a
E	22° +9°		—E—		0.219588			Tay85
E	16° +6°		—E—		- - - - -			Kos86
A		check[5]			- - - - -			Mi+90b
E					0.219593957			Mag90b
C	19° +14°	———	———	———	- - - - -	shape[10]		Th+00
L	16° +9°	———	———	———	0.21959387	shape[31]		Ka+01
C[32,33]	17° +11°	———	———	———	0.21959273	shape[10]		Mill+02
Synthesis	17° +11°	———	———	———	0.219593	shape[10]		Synthesis
435 Ella								
L	59° +64°	247° +58°	———	———	0.19261675	shape[31]		Mar+12
Synthesis	59° +64°	247° +58°	———	———	0.19261675	shape[31]		Synthesis
436 Patricia								
L*	———	———	124° −30°	339° −58°	0.672167	shape[31]		Ha+11
440 Theodora								
L**	———	———	80° −88°	———	0.201524	shape[31]		Ha+11
451 Patientia								
AM	153° +67°	345° +25°	165° −25°	333° −67°	- - - - -	1.07 1.0		Za+86b
L	39° +21°	163° +25°	———	———	0.4058829	1.0 1.0 [31]		Mic+05
Synthesis	39° +21°	163° +25°	———	———	0.4058829	1.0 1.0		Synthesis
462 Eriphyla								
EAM	———	101° +48°	———	289° +48°	0.3607880	1.2 1.1		Sli+09
L	———	108° +35°	———	294° +34°	0.3607875	1.2 1.3		Sli+09
Synthesis	———	106° +39°	———	293° +39°	0.3607875	1.2 1.2		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0 β_0	λ_0 β_0	λ_0 β_0	λ_0 β_0	Sidereal period (days)	Ellipsoidal model a/b b/c	Albedo varieg.	Reference code
471 Papagena								
AM	21° +31°			201° −31°	- - - - -	1.25 1.38		Bla+00
L	29° +41°	———	———	———	0.296402	shape[31]		Tor+08
L	———	222° +40°	———	———	0.296353	shape[31]		Tor+08
L	———	235° +56°	———	———	0.296463	shape[31]		Tor+08
L*	22° +18°	223° +67°	———	———	0.296474	shape[31]		Ha+11
O	—O—	223° +67°	———	———	0.296474			Dur+11
Synthesis	—O—	223° +67°	———	———	0.296474	shape[31]		Synthesis
484 Pittsburghia								
L*	69° +47°	———	———	———	0.443740	shape[31]		Dur+09
L*	70° +46°	———	———	———	0.443740	shape[31]		Ha+11
Synthesis	70° +47°	———	———	———	0.443740	shape[31]		Synthesis
486 Cremona								
L*	31° +30°	227° +59°	———	———	2.715	shape[31]		Ha+11
487 Venetia								
EAM	———	———	———	268° −24°	0.555897	1.07 2.01		Eri00
EAM	———	———	———	259° −30°	0.5554876	1.28 1.69		Tun+02
Synthesis	———	———	———	264° −27°	0.5556	1.17 1.8		Synthesis
495 Eulalia								
Z		224° +2°	44° −2°		- - - - -			Bin87
499 Venusia								
L*	37° +50°	212° +46°	———	———	0.561962	shape[31]		Ha+11
505 Cava								
Z	113° +4°			293° −10°	- - - - -			You+85
EAM	138° +40°	325° +27°			- - - - -	1.22 1.20		Mic96a
L	———	———	131° −21°	304° −44°	0.34083542	shape[31]		Mar+12
Synthesis	———	———	131° −21°	304° −44°	0.34083542	shape[31]		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
510 Mabella													
L*	———		———		−59°		−59°		0.80960				Ha+11
511 Davida													
AM	122°	+10°					302°	−10°	- - - - -				Geh+62
A	———		306°	+34°	126°	−34°	———		- - - - -				Cha+63
E			285°	+45°	—E—				- - - - -				Ves+85
AM	92°	+33°	303°	+34°	123°	−34°	272°	−33°	- - - - -	1.19	1.13		Za+86a
S	—S—		291°	+37°	—S—		—S—		- - - - -	1.30	1.4		Dru+86
AM			307°	+32°	127°	−32°			- - - - -	1.25	1.14		Dru+86
EAM	———		300°	+32°	—E—		—E—		0.21372345	1.25	1.16		Dr+88b
EAM	99°	+26°	299°	+26°	—E—		—E—		0.21372348	1.22	1.13		Mag90a
EAM	———		300°	+32°	—E—		—E—		0.21372345	1.25	1.16		Dru+91
EAM	96°	+32°	303°	+31°	—E—		—E—		0.2137234	1.23	1.12		Mic93
EA			298°	+22°	—E—		—E—		0.21372354	1.24	1.06		DeA95
EA				check[5]					- - - - -				Lag+95
L	———		303°	+44°	———		———		0.2137236	1.2	1.3[31]		Tor+03
SL	———		297°	+26°	———		———		0.2137234	shape[31]			Ma+06
S	———		297°	+21°	———		———		- - - - -	1.24	1.18		Con+07
Synthesis	———		300°	+25°	———		———		0.2137235	1.24	1.13		Synthesis
516 Amherstia													
EA	75°	+63°	256°	+55°	76°	−55°	255°	−63°	- - - - -	1.82	1.85		DeA95
EAM	76°	+30°							- - - - -	1.53	1.23		Mic96a
EAM[32]	75°	+17°					225°	−17°	0.3116333[2]	1.36	1.82		Mic+00
L*	80°	+53°	253°	+22°	———		———		0.311846	shape[31]			Dur+09
L*	81°	+54°	254°	+22°	———		———		0.311846	shape[31]			Ha+11
Synthesis	81°	+54°	254°	+22°	———		———		0.311846	shape[31]			Synthesis
532 Herculina													
S							132°	−59°	- - - - -	1.21	1.01		Dr+85b
E					96°	−1°			0.3918711	1.0[1]	1.0[1]	X[19]	Tay+87
EAM			284°	+34°					0.3918764	1.13	1.05		Kwi+92
EA					87°	−7°			0.3918710	1.24	1.06		DeA95
EAM	———		291°	+18°	—E—		—E—		0.3918720	1.21	1.13		Mic+95
A[28]			295°	+18°					- - - - -	1.21	1.20		Mic96b
E	91°	+21°	271°	+21°	—E—		—E—		0.3918712				Sza+99
L	———		289°	+10°	———		———		0.39187296	1.1	1.2[31]		Ka+02a
Synthesis	———		287°	+17°	———		———		0.391872	1.2	1.2		Synthesis
534 Nassovia													
EAM	52°	+42°	238°	+47°	———		———		0.3945380	1.4	1.5		Sli+03
L	58°	+50°	244°	+51°	———		———		0.3945400	1.3	1.4		Sli+03
EAM	67°	+40°	253°	+44°	———		———		0.3945377	1.3	1.3		Sli+09
L	57°	+54°	244°	+54°	———		———		0.3945383	1.3	1.4		Sli+09
L*	66°	+41°	252°	+42°	———		———		0.3945371	shape[31]			Ha+11
Synthesis	63°	+47°	250°	+47°	———		———		0.394537	1.3	1.4		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
540 Rosamunde													
L*		+57°		+57°	———		———		0.389491				Dur+09
537 Pauly													
AM			290°	+40°	110°	−40°			- - - - -	1.25	1.88		Bla+00
544 Jetta													
L*	———		———			−66°		−66°	0.322719				Dur+09
L*	———		———		31°	−67°	275°	−84°	0.32272	shape[31]			Ha+11
550 Senta													
L*	———		———			−64°		−64°	0.85720				Dur+09
L*	———		———			−63°		−63°	0.857192				Ha+11
554 Perago													
R			Concentric ring region[6]						- - - - -				Ost87
556 Phyllis													
L	35°	+55°	209°	+41°	———		———		0.1788592	shape[31]			Mar+07
Synthesis	35°	+55°	209°	+41°	———		———		0.1788592	shape[31]			Synthesis
573 Recha													
L*	———		———		74°	−24°	252°	−48°	0.298578	shape[31]			Ha+11
579 Sidonia													
Z	96°	+7°					276°	−7°	- - - - -				Bin87
584 Semiramis													
EAM	—E—		—E—		———		327°	−55°	0.2112053	1.19	1.28		Dr+88b
EAM	—E—		—E—		110°	−40°	320°	−30°	0.211206	1.17	1.1		Mag90a
EAM	—E—		—E—		112°	−51°	———		0.2112062	1.36	1.34		Mic93
EA	—E—		—E—		122°	−56°	315°	−43°	0.2112060	1.27	1.14[2]		DeA95
EAM	—E—		—E—		———		334°	−51°	0.2112061	1.25	1.12		Mic96a
L	———		———		106°	−39°	———		0.211205	1.3	1.2[31]		Tor+03
L*	———		———		106°	−56°	315°	−32°	0.211205	shape[31]			Ha+11
Synthesis	———		———		106°	−56°	315°	−32°	0.211205	1.25	1.12		Synthesis
590 Tomyris													
L*	———		———		120°	−46°	273°	−47°	0.231353	shape[31]			Ha+11
601 Nerthus													
L**	20°	+32°	173°	+44°	———		———		0.566246	shape[31]			Ha+11
606 Brangane													
L*	183°	+20°	354°	+26°	———		———		0.512111	shape[31]			Ha+11

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
614 Pia													
L*	165°	+32°	354°	+45°	———		———		0.190779	shape[31]			Dur+09
L*	162°	+27°	348°	+48°	———		———		0.19078	shape[31]			Ha+11
Synthesis	164°	+30°	351°	+47°	———		———		0.19078	shape[31]			Synthesis
622 Esther													
L*	———		———		−61°		−61°		1.97934				Ha+11
624 Hektor													
E	———		324°	+10°	—E—		—E—		0.28843884	shape[8]			Dun+69
A			313°	+11°	133°	−11°			- - - - -	2.00	2.63[11]		Pou81
A			315°	+10°	135°	−10°			- - - - -	2.02	1.0[1]		Pou81
EA	144°	+10°					322°	−4°	0.2884382				Mag83
AM	152°	+29°	314°	+15°	134°	−15°	332°	−29°	- - - - -	2.66	1.13		Zap+84
A D	152°	+27°	315°	+16°	135°	−16°	332°	−27°	- - - - -	2.26	1.35[2]		Pos+85
EA	—E—		—E—		134°	−15°	330°	−30°	0.2883544	2.70	1.43		Mag86
EAMD			314°	+17°	—E—		—E—		0.288335	2.22	1.19		Uch+87
E	—E—		—E—		134°	−17°	336°	−32°	0.2883546				Mic88
EA	—E—		—E—				328°	−26°	0.2883541	2.57	1.30		DeA92
AMD	152°	+27°	315°	+16°	135°	−16°	332°	−27°	- - - - -	2.26	1.36[2]		Det+92[25]
EAMD	145°	+3°					325°	−3°	- - - - -	1.0[1]	1.0[1]	X[15]	Det+92[25]
EAMD	149°	+22°					329°	−22°	- - - - -	shape[14]			Det+92[25]
EAMD	144°	+11°					324°	−11°	- - - - -	shape[14]			Det+92[25]
E	—E—		—E—		133°	−17°	336°	−33°	0.28835459				Det+92[25]
EA	—E—		—E—				328°	−26°	0.2883541	2.57	1.30		DeA95
AM	147°	+20°	316°	+3°	136°	−3°	327°	−20°	- - - - -	2.779	1.000		Bla+98
E	—E—		—E—		128°	−14°	308°	−14°	0.28835474				Sza+99
S	———		———		———		329°	−25°	- - - - -	2.21	1.0		Tan+03
Synthesis	—E—		—E—		133°	−16°	329°	−25°	0.2883544	2.4	1.0		Synthesis
628 Christine													
L*	———		———		24°	−61°	209°	−34°	0.673872	shape[31]			Dur+09
Synthesis	———		———		24°	−61°	209°	−34°	0.673872	shape[31]			Synthesis
629 Bernardina													
L**	40°	+33°	236°	+48°	———		———		0.156817	shape[31]			Ha+11
631 Philippina													
L*	———		———		———		183°	−2°	0.245925	shape[31]			Ha+11
636 Erika													
L*	———		———		−52°		−52°		0.608648				Dur+09
665 Sabine													
L	———		———		———		310°	−77°	0.1789179	1.3	1.2		Mic+06
Synthesis	———		———		———		310°	−77°	0.1789179	1.3	1.2		Synthesis
674 Rachele													
EAM	12°	+2°							1.2898610	1.93	1.09		Tun+02

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
675 Ludmilla													
EAM	—E—		—E—		12°	−45°			0.3215510	1.44	1.89		Vel+95
EAM	—E—		—E—		15°	−35°	205°	−50°	0.321551	1.37	1.3		Vel+95
L	———		———		20°	−36°	215°	−54°	0.3215506	1.3	1.1[31]		Tor+03
Synthesis	———		———		16°	−39°	210°	−52°	0.321551	1.3	1.2		Synthesis
679 Pax													
AM			245°	+5°	65°	−5°			- - - - -	1.18	1.30		She+09
L	———		220°	+32°	42°	−5°	———		0.3523340	shape[31]			Mar+11
SL	———		220°	+32°	———		———		0.3523340	shape[31]			Mar+11
Synthesis	———		220°	+32°	———		———		0.3523340	shape[31]			Synthesis
683 Lanzia													
EA	198°	+55°	342°	+55°	18°	−55°	165°	−55°	- - - - -	1.85	1.00		DeA95
EA	—E—		—E—		15°	−52°	195°	−52°	0.1964156	1.15	1.05		Kis+99
Synthesis	—E—		—E—		16°	−53°	190°	−53°	0.1964156				Synthesis
685 Hermia													
L**	29°	+79°	197°	+87°	———		———		2.099458	shape[31]			Ha+11
690 Wratislavia													
L	177°	+17°	359°	+45°	———		———		0.3590825	1.1	1.3		Mic+06
692 Hippodamia													
L*	———		———			−52°		−52°	0.374871				Ha+11
694 Ekard													
R			Concentric ring region[6]						- - - - -				Ost87
EAM	96°	+32°	———		—E—		—E—		0.246744	1.42	1.38		Dr+88b
EAM	105°	+29°	267°	+56°	—E—		—E—		0.2467465[2]	1.45	1.32[2]		Dru+91
EAM	98°	+40°	———		—E—		—E—		0.2467460	1.46	1.73		Mic93
EA	86°	+25°	242°	+25°	—E—		—E—		0.2467459	1.34	1.22[2]		DeA95
L	———		———		89°	−48°	———		0.2467501	1.2	1.1[31]		Tor+03
Synthesis	98°	+40°	———		89°	−48°	———		0.2467501	1.3			Synthesis
695 Bella													
L*	———		———		87°	−55°	314°	−56°	0.592458	shape[31]			Ha+11
699 Hela													
L	45°	+44°	197°	+31°	———		———		0.14150967	shape[31]			Mar+12
Synthesis L	45°	+44°	197°	+31°	———		———		0.14150967	shape[31]			Synthesis
700 Auravictrix													
AM			265°	+56°	86°	−58°			- - - - -	1.43	1.92		She+09
L	67°	+46°	269°	+51°	———		———		0.2531181	shape[31]			Kry13
Synthesis	67°	+46°	269°	+51°	———		———		0.2531181	shape[31]			Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
704 Interamnia													
Z	70°	+10°					250°	−10°	- - - - -				Har+79
EAM	—E—		—E—		43°	−21°	224°	−22°	- - - - -	1.19[2]	1.07		Mic93
EA					47°	−3°	227°	+1°	- - - - -	1.11	1.06		DeA95
EAM	51°	+22°	———		—E—		—E—		0.3636372	1.11	1.13		Mic+95
S	36°	+12°	———		———		———		- - - - -	1.14	2.1		Dru+08
S	47°	+66°	———		———		———		- - - - -	1.03	1.24		Dru+09
Synthesis	46°	+30°	———		———		———		0.3636372	1.1			Synthesis
714 Ulula													
L*	———		———		40°	−4°	225°	−13°	0.291599	shape[31]			Dur+09
L	———		———		42°	−9°	227°	−14°	0.2915990	shape[31]			Mar+11
L*	———		———		41°	−5°	224°	−10°	0.291599	shape[31]			Ha+11
Synthesis	———		———		41°	−6°	225°	−13°	0.2915990	shape[31]			Synthesis
720 Bohlinia													
EAM[32]	65°	+40°	249°	+37°	———		———		0.3716084	1.4	1.2		Sli+03
L [32]	40°	+43°	230°	+41°	———		———		0.3716090	1.4	1.3		Sli+03
Synthesis	48°	+41°	236°	+38°	———		———		0.3716088	1.4	1.3		Synthesis
733 Mocia													
L*		+36°		+36°	———		———		0.4740045				Ha+11
746 Marlu													
L*	———		———			−54°		−54°	0.324536				Ha+11
747 Winchester													
EAM	27°	+50°	———		—E—		—E—		- - - - -	1.16	2.60		Mic93
EA			353°	+39°	173°	−39°			- - - - -	1.18	1.00		DeA95
L	———		———		166°	−44°	296°	−61°	0.3922836	shape[31]			Mar+09
LO	———		———		—O—		304°	−60°	0.3922833	shape[31]			Dur+11
Synthesis	———		———		—O—		300°	−61°	0.3922835	1.17			Synthesis
753 Tiflis													
L**	5°	+36°	199°	+57°	———		———		0.409412	shape[31]			Ha+11
770 Bali													
L*	68°	+44°	256°	+40°	———		———		0.242456	shape[31]			Dur+09
L*	70°	+50°	262°	+45°	———		———		0.242456	shape[31]			Ha+11
L	68°	+50°	262°	+45°	———		———		0.2424559	shape[31]			Kry13
Synthesis	68°	+50°	262°	+45°	———		———		0.2424559	shape[31]			Synthesis
771 Libera													
L	———		———		64°	−78°	———		0.2455925	shape[31]			Mar+09a
Synthesis	———		———		64°	−78°	———		0.2455925	shape[31]			Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
776 Berbericia													
EAM	7°	+20°	———		———		———		0.3194588	1.09	1.30		Eri00
EAM	8°	+23°	———		———		———		0.3194538	1.18	1.18		Tun+02
L	———		347°	+12°	———		———		0.3194587	shape[31]			Dur+07
L	170°	+59°	347°	+11°	———		———		0.319449	shape[31]			Tor+08
Synthesis	———		347°	+12°	———		———		0.3194587	1.14	1.2		Synthesis
784 Pickeringa													
L*		+58°		+58°	———		———		0.548746				Ha+11
787 Moskva													
AM	80°	+36°					260°	−36°	- - - - -	2.26	1.44		She+09
800 Kressmannia													
L*	172°	+34°	345°	+37°	———		———		0.185873	shape[31]			Ha+11
L	156°	+56°	328°	+59°	———		———		0.1858737	shape[31]			Kry13
Synthesis	156°	+56°	328°	+59°	———		———		0.1858737	shape[31]			Synthesis
804 Hispania													
EAM	90°	+28°					270°	−28°	- - - - -	1.17	1.92		Mic92
EA	107°	+49°	227°	+50°	47°	−50°	287°	−49°	- - - - -	1.20	2.00		DeA95
808 Merxia													
L*	26°	+54°	192°	+57°	———		———		1.27625	shape[31]			Ha+11
810 Atosa													
L**	12°	+67°	188°	+69°	———		———		0.182728	shape[31]			Ha+11
823 Sisigambis													
L*		+57°		+57°	———		———		6.1075				Ha+11
825 Tanina													
L	38°	+51°	232°	+53°	———		———		0.2891587	shape[31]			Kry+08
L*		+54°		+54°	———		———		0.289159				Dur+09
L*	46°	+48°	231°	+60°	———		———		0.2891587	shape[31]			Ha+11
L	42°	+49°	231°	+56°	———		———		0.2891587	shape[31]			Kry13
Synthesis	42°	+49°	231°	+56°	———		———		0.2891587	shape[31]			Synthesis
832 Karin													
L*	59°	+44°	242°	+46°	———		———		0.764633	shape[31]			Ha+11
847 Agnia													
L*	162°	+13°	341°	+18°	———		———		0.617696	shape[31]			Ha+11
849 Ara													
L*	———		———		17°	−10°	213°	−33°	0.1715163	shape[31]			Dur+09
L	———		———		10°	−25°	223°	−40°	0.1715163	shape[31]			Mar+09
O	———		———		——O——		223°	−40°	0.1715163				Dur+11
Synthesis	———		———		——O——		223°	−40°	0.1715163	shape[31]			Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
852 Wladilena													
A	53°	+24°	235°	+21°	55°	−21°	233°	−24°	- - - - -	1.23	1.15		DeA+95
A	30°	+30°	210°	+30°	30°	−30°	210°	−30°	- - - - -	2.3	1.2		Kis+99
877 Walkure													
L*		+53°		+53°	———		———		0.72590				Ha+11
887 Alinda													
EAM			190°	+33°					3.0760710	1.06	1.56		Tun+02
889 Erynia													
L**	———		———		187°	−60°	335°	−74°	0.411454	shape[31]			Ha+11
899 Jokaste													
L*	———		———			−58°		−58°	0.2603383				Ha+11
915 Cosette													
L*	185°	+50°	348°	+55°	———		———		0.1862392	shape[31]			Dur+09
L*	189°	+61°	350°	+56°	———		———		0.1862392	shape[31]			Ha+11
L	194°	+58°	352°	+54°	———		———		0.1862392	shape[31]			Kry13
Synthesis	194°	+58°	352°	+54°	———		———		0.1862392	shape[31]			Synthesis
925 Alphonsina													
L*	147°	+22°	296°	+41°	———		———		0.328231	shape[31]			Ha+11
O	——O——		294°	+41°	———		———		0.328231				Dur+11
Synthesis	——O——		294°	+41°	———		———		0.328231	shape[31]			Synthesis
934 Thuringia													
L**	———		———		120°	−52°	———		0.340222	shape[31]			Ha+11
937 Bethgea													
L	128°	+70°	305°	+79°	———		———		0.3141319	shape[31]			Kry13
Synthesis	128°	+70°	305°	+79°	———		———		0.3141319	shape[31]			Synthesis
944 Hidalgo													
L	———		281°	+5°	———		———		0.4191097	shape[31]			Dur+07
Synthesis L	———		281°	+5°	———		———		0.4191097	shape[31]			Synthesis
951 Gaspra													
EAM	20°	+22°	198°	+13°	——E——		——E——		0.2934197	1.6	1.1		Mag+92
C	15°	+16°	——C——		——C——		——C——		- - - - -				Dav+92
EA	19°	+20°	———		——E——		——E——		0.2934194	1.59	1.10		DeA92
AMF	15°	+24°							- - - - -	shape[13],[12],[17]			Bar+92
C	19°	+21°	——C——		——C——		——C——		- - - - -				Da+94a
C	19°	+21°	——C——		——C——		——C——		- - - - -	shape[26]			Tho+94
E C									0.2934177				Sim+95
EA	19°	+20°	———		——E——		——E——		0.2934194	1.75	1.00		DeA95
L [32]	20°	+19°	———		———		———		0.2934191	shape[31]			Ka+01
EAM	20°	+26°							0.2934170	1.58	1.23		Tun+02
Synthesis	19°	+21°	———		———		———		0.293419	shape[26]			Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
966 Muschi													
L*	———		———			−57°		−57°	0.223138				Dur+09
984 Gretia													
AM	46°	+47°	48°	+12°	228°	−12°	226°	−47°	- - - - -	2.25	1.00		Bla+00
L	———		245°	+52°	———		———		0.2407510	shape[31]			Mar+09a
Synthesis	———		245°	+52°	———		———		0.2407510	shape[31]			Synthesis
1002 Olbersia													
SPA	16°	+54°	220°	+35°	———		———		0.426529	shape[31]			Ha+11
1010 Marlene													
L*		+46°		+46°	———		———		1.29442				Ha+11
1012 Sarema													
L*	51°	+64°	254°	+53°	———		———		0.429462	shape[31]			Dur+09
L*	45°	+67°	253°	+63°	———		———		0.429462	shape[31]			Ha+11
Synthesis	48°	+66°	254°	+58°	———		———		0.429462	shape[31]			Synthesis
1022 Olympiada													
L*	40°	+18°	250°	+71°	———		———		0.159733	shape[31]			War+08
L*	46°	+10°	242°	+52°	———		———		0.159733	shape[31]			Ha+11
Synthesis	43°	+14°	246°	+62°	———		———		0.159733	shape[31]			Synthesis
1036 Ganymed													
E	Prograde rotation								0.42951				Lu+87b
E					Retrograde rotation								Hah+89
L	———		———		———		208°	−76°	0.42967	1.0	1.5[31]		Ka+02a
Synthesis	———		———		———		208°	−76°	0.42967	1.0	1.5		Synthesis
1087 Arabis													
L*	155°	+12°	———		———		334°	−7°	0.241459	shape[31]			Ha+11
1088 Mitaka													
L*	———		———		115°	−46°	278°	−72°	0.1264740	shape[31]			Dur+09
L*	———		———		———		280°	−71°	0.1264740	shape[31]			Ha+11
L	———		———		125°	−53°	285°	−66°	0.1264742	shape[31]			Kry13
Synthesis	———		———		125°	−53°	285°	−66°	0.1264742	shape[31]			Synthesis
1089 Tama													
L*	———		———			−21°		−21°	0.68606				Dur+09
1102 Pepita													
L**	———		———		25°	−34°	231°	−30°	0.212722	shape[31]			Ha+11

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
1103 Sequoia													
L*	———		———			−48°		−48°	0.1265823				Ha+11
1140 Crimea													
L*	———		———		12°	−73°	175°	−22°	0.407787	shape[31]			Ha+11
1148 Rarahu													
L**	———		———		148°	−9°	322°	−9°	0.272687	shape[31]			Ha+11
1185 Nikko													
L*		+46°		+46°	———		———		0.157756				Ha+11
1188 Gothlandia													
L*	———		———			−52°		−52°	0.1454925				Dur+09
L*	———		———			−63°		−63°	0.1454925				Ha+11
L	———		———		104°	−77°	———		0.1454925	shape[31]			Kry13
Synthesis	———		———		104°	−77°	———		0.1454925	shape[31]			Synthesis
1207 Ostenia													
L*	———		———			−57°		−57°	0.377970				Dur+09
L*	———		———		124°	−51°	310°	−77°	0.377970	shape[31]			Ha+11
1214 Richilde													
L*	———		———			−59°		−59°	0.4111195				Ha+11
1219 Britta													
E					Retrograde rotation				0.232290				Bin+87
L	———		———		164°	−79°	———		0.2323152	shape[31]			Kry13
Synthesis	———		———		164°	−79°	———		0.2323152	shape[31]			Synthesis
1223 Neckar													
EAM[32]	70°	+45°	225°	+42°	—E—		—E—		0.3232105	1.47	1.28		Mic+00
EAM	73°	+45°	258°	+42°	———		———		0.3258850	1.6	1.3		Sli+03
L	73°	+44°	259°	+41°	———		———		0.3258850	1.5	1.4		Sli+03
L*	69°	+30°	252°	+28°	———		———		0.3260004	shape[31]			Ha+11
Synthesis	72°	+40°	256°	+38°	———		———		0.3258850	1.5	1.3		Synthesis
1263 Varsavia													
L**O	———		———		———		341°	−14°	0.298539	shape[31]			Dur+11
Synthesis	———		———		———		341°	−14°	0.298539	shape[31]			Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
1270 Datura													
L*		+59°		+59°	———		———		0.1399208	shape[31]			Dur+09
L	60°	+76°	264°	+77°	———		———		0.1399208	shape[31]			Vok+10
Synthesis	60°	+76°	264°	+77°	———		———		0.1399208	shape[31]			Synthesis
1282 Utopia													
L*	———		———			−39°		−39°	0.567617				Ha+11
1289 Kutaissi													
EAM	———		———		172°	−74°	342°	−76°	0.15100724	1.3	1.0		Sli+09
L	———		———		158°	−79°	338°	−74°	0.15100725	1.2	1.1		Sli+09
Synthesis	———		———		164°	−76°	340°	−75°	0.15100724	1.2	1.1		Synthesis
1291 Phryne													
L*	106°	+35°	277°	+59°	———		———		0.2326725	shape[31]			Ha+11
1301 Yvonne													
L**	39°	+41°	———		———		———		0.3049867	shape[31]			Ha+11
1333 Cevenola													
L*	———		———		38°	−86°	220°	−44°	0.203305	shape[31]			Ha+11
1350 Rosselia													
L*	———		———			−58°		−58°	0.339171				Ha+11
1368 Numidia													
L*	———		———			−50°		−50°	0.1516975				Ha+11
1379 Lomonosowa													
L*	———		———			−62°		−62°	1.020188				Ha+11
1382 Gerti													
L*	87°	+28°	268°	+23°	———		———		0.1283978	shape[31]			Ha+11
1389 Onnie													
L*	———		———			−56°		−56°	0.960196				Ha+11
1419 Danzig													
L*	22°	+76°	193°	+62°	———		———		0.338315	shape[31]			Ha+11
1482 Sebastiana													
L*	———		———		91°	−67°	262°	−68°	0.4370687	shape[31]			Ha+11
1514 Ricouxa													
L*		+71°		+71°	———		———		0.434361				Dur+09
L*	68°	+69°	251°	+75°	———		———		0.434362	shape[31]			Ha+11

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
1566 Icarus													
E	49°	0°	229°	0°					0.09471				Geh+70
EA			214°	+5°					0.094735	1.23	1.40		DeA95
Synthesis			214°	+5°					0.094735	1.23	1.40		Synthesis
1665 Gaby													
L*		+49°		+49°	———		———		2.82938				Ha+11
1568 Aisleen													
L**	———		———		109°	−68°	———		0.2781654	shape[31]			Ha+11
1572 Posnania													
EAM[32]	———		———		46°	−65°	———		0.3353931	1.35	1.04		Mic+01
Synthesis	———		———		46°	−65°	———		0.3353931	1.35	1.04		Synthesis
1675 Simonida													
L	23°	+58°	227°	+54°	———		———		0.2203317	shape[31]			Kry13
Synthesis	23°	+58°	227°	+54°	———		———		0.2203317	shape[31]			Synthesis
1580 Betulia													
A			140°	+20°			320°	−20°	- - - - -	1.21[10]			Ted+78
EAM	80°	+12°			212°	−5°			0.2565	1.7	1.4		Dru+90
L	136°	+22°	———		———		———		0.255765	1.1	1.4[31]		Ka+04
R	136°	+22°	———		———		———		0.255765	shape[30]			Mag+07
Synthesis	136°	+22°	———		———		———		0.255765	1.1	1.4		Synthesis
1620 Geographos													
E			——E——		20°	−60°			0.2176378	shape[8]			Dun74
A				check[5]					- - - - -				Mi+90b
EAM			——E——		15°	−77°			0.2176342	2.7	1.05		Kwi94
EAM			——E——		15°	−77°			0.2176390	2.7	1.05		Kwi94
EAM			——E——		54°	−52°			0.21763867	2.6	1.1		Mic+94
EA			——E——		54°	−52°			0.21763866	2.5	1.1		Kwi95
EA			——E——		54°	−52°			0.21764381	2.5	1.1		Kwi95
EAM	——E——		——E——		56°	−47°	———		0.21763860	2.58	1.00		Mag+96
R	———		———		55°	−46°	———		0.21763863	2.5	1.0[29]		H+O99
L	———		———		55°	−45°	———		0.21763858	shape[31]			Ka+01
Synthesis	———		———		55°	−46°	———		0.21764	2.6	1.1		Synthesis
1627 Ivar													
E	Prograde rotation								0.19991				Lup+86
E	147°	+13°	333°	+18°					0.199953				Ve+89a[23]
EA	110°	+20°	320°	+40°					0.19995				Hah+89
E	——E——		——E——		143°	−37°			0.1999154				Kis+99
A	145°	+34°	325°	+34°	145°	−34°	325°	−34°	- - - - -	2.0	1.09		Kis+99
L	———		333°	+43°	———		———		0.1997987	1.9	1.3[31]		Ka+04
Synthesis	———		333°	+43°	———		———		0.1997987	1.9	1.3		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950)								Sidereal period	Ellipsoidal model		Albedo varieg.	Reference code
	λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	(days)	a/b	b/c		
1635 Bohrmann													
L*	———		———		5°	−38°	185°	−36°	0.244345	shape[31]			Ha+11
1659 Punkaharju													
L*	———		———		75°	−22°	259°	−71°	0.208886	shape[31]			Ha+11
1682 Karel													
L**	51°	+41°	232°	+32°	———		———		0.140619	shape[31]			Ha+11
1685 Toro													
EA			200°	+55°	—E—				0.42481	3.2			Dun+73
EA			220°	+30°	—E—				0.424808	2.08	1.80		DeA95
Synthesis			210°	+43°	—E—				0.424808	2.1	1.8		Synthesis
1709 Ukraina													
L*	———		———		2°	−40°	165°	−61°	0.304382	shape[31]			Ha+11
1719 Jens													
L*	———		———			−56°		−56°	0.24459				Ha+11
1742 Schaifers													
L*	47°	+55°	198°	+57°	———		———		0.355529	shape[31]			Ha+11
1747 Wright													
L**	———		227°	+31°	———		———		0.220332	shape[31]			Ha+11
1862 Apollo													
EA			—E—		56°	−26°			0.1277265				Har+87
EA			—E—		38°	−36°			0.127754	2.08	1.80		DeA95
Synthesis			—E—		47°	−31°			0.127754	2.08	1.80		Synthesis
1889 Pakhmutova													
L**	———		———		22°	−76°	167°	−40°	0.729821	shape[31]			Ha+11
1930 Lucifer													
L*	32°	+17°	———		———		211°	−19°	0.54390	shape[31]			Ha+11
1980 Tezcatlipoca													
L	———		———		———		334°	−66°	0.302177	1.4	1.4[31]		Ka+04
Synthesis	———		———		———		334°	−66°	0.302177	1.4	1.4		Synthesis
2001 Einstein													
L*	———		———			−51°		−51°	0.228542				Ha+11
2017 Wesson													
L	159°	+81°	356°	+79°	———		———		0.1423157	shape[31]			Kry13
Synthesis	159°	+81°	356°	+79°	———		———		0.1423157	shape[31]			Synthesis
2063 Bacchus													
R					24°	−26°			0.652	shape[30]			Ben+99
Synthesis					24°	−26°			0.652	shape[30]			Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0 β_0	λ_0 β_0	λ_0 β_0	λ_0 β_0	Sidereal period (days)	Ellipsoidal model a/b b/c	Albedo varieg.	Reference code
2100 Ra-Shalom								
L	73° +13°	———	———	———	0.824992	1.2 1.3[31]		Ka+04
Synthesis	73° +13°	———	———	———	0.824992	1.2 1.3		Synthesis
2156 Kate								
L*	49° +74°	———	———	———	0.234256	shape[31]		Ha+11
L	30° +73°	237° +64°	———	———	0.2342532	shape[31]		Kry13
Synthesis	30° +73°	237° +64°	———	———	0.2342532	shape[31]		Synthesis
2867 Steins								
L	———	———	———	250° −89°	0.2519504	1.16 1.08[31]		Lam+08
Synthesis	———	———	———	250° −89°	0.2519504	1.16 1.08		Synthesis
3103 Eger								
E	Prograde rotation				0.2377819			Vel+92
L	———	———	10° −50°	———	0.23778217	1.5 1[31]		Ka+02a
Synthesis	———	———	10° −50°	———	0.23778217	1.5 1		Synthesis
3199 Nefertiti								
L	———	———	———	197° −22°	0.12584029	1.1 1.1[31]		Ka+04
Synthesis	———	———	———	197° −22°	0.12584029	1.1 1.1		Synthesis
3200 Phaeton								
EAM	—E—	—E—	97° −11°	276° −15°	0.1496080[2]			Kru+02
Synthesis	—E—	—E—	97° −11°	276° −15°	0.1496080			Synthesis
3678 Mongmanwai								
L*	———	———	———	125° −65°	0.174290	shape[31]		Ha+11
3908 Nyx								
EAM	177° +23°	312° +61°	—E—	—E—	0.18441	1.3 1.2[2]		Dru+90
R	43° +71°		———	———		shape[30]		Ben+02
L	———	291° +69°	———	———	0.1844208	1.2 1.0[31]		Ka+04
Synthesis	43° +71°	291° +69°	———	———	0.1844208	1.2 1.0		Synthesis
4179 Toutatis								
R		Precessing			- - - - -	2.10 1.35[29]		H+O95
4483 Petofi								
L*	107° +40°	———	———	———	0.1805412	shape[31]		Ha+11
4486 Mithra								
R	———	337° +19°	154° −19°	———	2.81	1.44 1.15		Bro+10
4660 Nereus								
R	25° +80°	———	———	———	0.631	1.55 1.37		Bro+09
Synthesis	25° +80°	———	———	———	0.631	1.55 1.37		Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0 β_0	λ_0 β_0	λ_0 β_0	λ_0 β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
4769 Castalia									
R				253° −56°	0.17038				Hud+97
R			62° −7°		0.17058				Hud+97
EAM				253° −56°	0.17038				Eri+00
EAM		242° +7°			0.17058				Eri+00
Synthesis	———	———	———	235° −56°	0.17058				Synthesis
4957 Brucemurray									
L	———	———	———	358° −50°	0.120510	1.1	1.1[31]		Ka+04
Synthesis	———	———	———	358° −50°	0.120510	1.1	1.1		Synthesis
4979 Otawara									
EAM	———	———	50° −30°	———	0.112776	1.21			For+03
Synthesis	———	———	50° −30°	———	0.112776	1.2			Synthesis
5145 Pholus									
EAM	149° +26°			337° −5°	0.4159256	1.8	1.0		Far+01
5587 1990 SB									
L	———	———	———	253° −60°	0.210508	2.0	1.2[31]		Ka+04
Synthesis	———	———	———	253° −60°	0.210508	2.0	1.2		Synthesis
6053 1993 BW3									
E	—E—	—E—	175° −9°	359° −26°	0.107238[2]	1.08	1.5		Pra+97
L	178° +10°	———	———	358° −8°	0.107246	1.1	1.6[31]		Ka+02a
L	———	———	180° −6°	345° −14°	0.107238[2]	shape[31]			Dur02
Synthesis	———	———	178° −7°	354° −16°	0.10723	1	1.5		Synthesis
6489 Golevka									
EA[32]		345° +45°			0.25109	1.25			Mot+97
EA[32]		350° +25°			0.25111	1.6	0.7	X[35]	Mot+97
EA[32]				190° −55°	0.25123	1.25			Mot+97
EA[32]				200° −55°	0.25125	1.6	1.2	X[35]	Mot+97
R	———	———	———	202° −45°	0.251204	1.01	1.0[29,30]		Hud+00
L	———	———	———	208° −47°	0.251238	shape[31]			Ka+01
Synthesis	———	———	———	205° −46°	0.25122	1.0	1.0		Synthesis
9969 Braille									
C	———	314° +65°	———	———	- - - - -	2.1	1.0		Ob+01
10115 1992 SK									
RL	———	———	99° −3°	———	0.30493	shape[30]			Bus+06
Synthesis	———	———	99° −3°	———	0.30493	shape[30]			Synthesis

Basic data	Spin vector solutions (ecliptic coordinates of equinox 1950) λ_0	β_0	λ_0	β_0	λ_0	β_0	λ_0	β_0	Sidereal period (days)	Ellipsoidal model a/b	b/c	Albedo varieg.	Reference code
25143 Itokawa													
L	———		———		———		355°	−84°	0.50550	2.0	1.3[31]		Ka+03
EA	———		———		39°	−87°	———		0.50550	1.9	1.2		Ka+03
EA	———		———		———		320°	−75°	- - - - -	2.13	1.68		Oh+03
C	———		———		128°	−89°	———		- - - - -	1.82	1.41[37]		De+06
Synthesis	———		———			−88°	355°	−84°	0.50550	1.9	1.3 [38]		Synthesis
29075 1950 DA													
R	89°	+78°	———		———		187°	−89°	- - - - -	shape[30]			Bus+07
33342 1998 WT24													
T	175°	+52°					355°	−52°	- - - - -	[39]			Har+07
R	———		———		15°	−22°	———		0.1540416	1.09	1.10[29]		Bus+08
Synthesis	———		———		15°	−22°	———		0.1540416	1.09	1.10		Synthesis
2008 EV5													
X				Retrograde rotation					- - - - -				Bus+10
R	0°	+84°	———		———		180°	−84°	- - - - -	1.02	1.05		Bus+11
Synthesis	———		———		———		180°	−84°	- - - - -	1.02	1.05		Synthesis

Footnotes:

[1] Assumed value.
[2] Mean value of two significantly different solutions.
[3] Different spin axis solutions for different apparitions was interpreted as indicating a precessing motion.
[4] Symmetric solution obtained, but quantitative specification is missing.
[5] Consistency check of previous spin vector determinations.
[6] Based on a radar experiment giving constraints on the aspect angle at the time of observation.
[7] Based on two radar experiments giving an aspect circle at the time of observation.
[8] Modelled as a cylinder with hemispherical ends.
[9] Modelled as a cylinder cut out of a sphere.
[10] Complex shape.
[11] Modelled as a Jocobi ellipsoid.
[12] Modelled as 8 octants of ellipsoids put together to form a continous surface.
[13] Modelled as an ellipsoid with a piece removed by a plane cut.
[14] Modelled as an irregular polyhedron.
[15] Modelled as a sphere with free albedo facets.
[16] Results show that there is no significant albedo variegation.
[17] Modelled using a spherical harmonics expansion of the shape.
[18] Albedo model with a single big spot.
[19] Modelled as a sphere with 2 dark regions.
[20] Speckle images showing albedo variegation.
[21] Bi-axial ellipsoid (a/b=1.15) with a flat region just off the South Pole.
[22] Also presented in Ful+91.
[23] Also presented in English in Lup+90.
[24] Also presented in Mi+90c.
[25] Also presented in Det+94.
[26] Detailed model from space images.

[27] Also presented in Mic94.
[28] The spin axis is not aligned with the c-axis of the ellipsoid model.
[29] DEEVE - dynamicaly equivalent equal volume ellipsoid adopted for the complex shape.
[30] Complex radar model.
[31] Convex shape obtained with lightcurve inversion.
[32] Pole coordinates calculated for J2000.
[33] Values for pole coordinates in the paper are 17.238, 11.351
[34] Also presented in Bla+98.
[35] Model requires albedo variegation
[36] Suggested albedo variegations of 4%
[37] Values for pole coordinates in the paper are 128.5, -89.66
[38] Because of latitude close to 90 deg, longitude is ambiguous
[39] Crude approximation of the spin axis orientation