Table A. Crystallographic data for binary actinide pnictides and chalcogenides with a cubic structure of the Th_3P_4-type (space group $I\bar{4}3d$).

Compound	Lattice parameter *a* [pm]	Ref.
Pu_4Sb_3	923.70	87B
Am_4Sb_3	924.03	87B
Th_3P_4	860.0	39M
	865.30(5)	65PW
Th_3As_4	884.3	39M
	882.5	55F
	885.48(5)	65PW
Th_3Sb_4	936.59(5)	65PW
Th_3Bi_4	955.9	57F
	956.2	82BBF
Pa_3P_4	824.3(1)	82WDH
Pa_3As_4	852.24	79CSRM
Pa_3Sb_4	910.98(3)	79HDC
	911.2	86DDT
U_3P_4	821.4	63TT
	821.20(5)	64WP2
U_3As_4	851.90(5)	64WP2
	852.0(3)	77AFWG
	852.8(5)	80BLTH
U_3Sb_4	910.9(3)	64WP2
	911.1(3)	77AFWG
	909.5(5)	89SGBD
U_3Bi_4	936.8	71TMS
	938 (2)	97HWG
U_3Se_4	876.0	71TMS
	882.0(1)	85N2
U_3Te_4	939.8	54F
	941.6	71BBW
Np_3P_4	820(2)	53SF
Np_3As_4	851.53(7)	73CD
	851.57(7)	82WD
Np_3Sb_4	924.05	74LDN
Np_3S_4	844.0	69M,76CBDD
Np_3Se_4	882.6	49Z2
	882.61(2)	71ML
Np_3Te_4	940.48(1)	71ML
	940.5	76DB
Pu_3S_4	839.5	66KM,
	841.55(5)	69M,76DB
Pu_3Se_4	876.8	70ADJ
	879.52(1)	71ML
Am_3S_4	842.0	70ML1
Am_3Se_4	878.20(2)	70ML2
	879.9	71D,76CBDD

Table A (cont.)

Compound	Lattice parameter *a* [pm]	Ref.
Am_3Te_4	939.4(2)	70ML2
	940.4	71D,76CBDD
	938.2(4)	72DC,76D
γ-Ac_2S_3	897(1)	49Z1
γ-U_2Te_3	939.6	63MMH
	940.6	71BBW
	940.00(1)	95SSTK
γ-Np_2S_3	844.0(1)	67M
γ-Np_2Se_3	882.6	69M,76D
	880.1	76CBDD
γ-Pu_2S_3	845.90(5)	69M
	845.85	70ADJ
γ-Pu_2Se_3	879.65(5)	69M
	879.52(1)	71ML
γ-Pu_2Te_3	935.5	67AJ,70ADJ
γ-Am_2S_3	844.5(3)	49Z2
	843.44(3)	71D
γ-Am_2Se_3	878.20(2)	70ML2
	878.1	86DDT
γ-Am_2Te_3	939	72DC
γ-Cm_2S_3	844	68CFST
γ-Cm_2Se_3	877.7	86DDT
γ-Cm_2Te_3	934.4	86DDT
γ-Bk_2S_3	844	68CFST
γ-Bk_2Se_3	871.2	86DDT
γ-Cf_2S_3	838.8	68FCST
γ-Cf_2Se_3	867.5	86DDT

Table B. Crystallographic data for non-cubic binary actinide pnictides and chalcogenides with stoichiometry 2:3.

Compound	Symmetry	Space group (structure type)	Lattice parameters			Ref.
			a [pm]	*b* [pm]	*c* [pm]	
η-Th_2S_3	orthorhombic	Pnma (Sb_2S_3)	1083(5)	1097(5)	395(3)	49Z2
			1085	1099	396	67AD
η-Th_2Se_3	orthorhombic	Pnma (Sb_2S_3)	1132	1155	426	67AD
α-U_2N_{3+x}	cubic	Ia3 (Mn_2O_3)	1068.4			48RBWM, 74TM
β-U_2N_3	trigonal	$P\bar{3}m1$ (La_2O_3)	370.0		582.6	62TTL
			370.0(2)		582.5(3)	75MT
η-U_2S_3	orthorhombic	Pnma (Sb_2S_3)	1039(2)	1063(2)	388(1)	49Z2
			1041	1065	389	58PF
			1036	1060	386	74ESS

Table B (cont.)

Compound	Symmetry	Space group (structure type)	Lattice parameters			Ref.
			a [pm]	*b* [pm]	*c* [pm]	
η-U_2Se_3	orthorhombic	Pnma (Sb_2S_3)	1137	406	1094	67AD
			1134	405.7	1092	75LSW
			1130	406	1094	75ESS
			1133	406	1094	76DB
η-U_2Te_3	orthorhombic	Pnma (Sb_2S_3)	1222	436	1171	77SRG
			1234	443.3	1179	81G
	at 300 K		1217.5(2)	437.0(1)	1182.8(2)	98TPLN
	at 1.4 K		1216.23(7)	435.65(2)	1181.09(7)	01TABN
α-Np_2S_3	orthorhombic	Pnma (La_2S_3)	739(2)	398(1)	1550(3)	69M
β-Np_2S_3	tetragonal	$I4_1/acd$ (Pu_2S_3)	1494(2)		1984(2)	69M
η-Np_2S_3	orthorhombic	Pnma (Sb_2S_3)	1030(10)	1060(10)	386(5)	49Z2
η-Np_2Te_3	orthorhombic	Pnma (Sb_2S_3)	1189	1221	436.9	86DDT
α-Pu_2S_3	orthorhombic	Pnma (La_2S_3)	398	739	1532	67AD
			397(1)	737(2)	1545(3)	69M
β-Pu_2S_3	tetragonal	$I4_1/acd$ (Ce_5S_7)	1490(2)		1978(2)	68BAF
η-Pu_2Se_3	orthorhombic	Pnma (Sb_2S_3)	1110(2)	1132(2)	410(1)	69M
η-Pu_2Te_3	orthorhombic	Pnma (Sb_2S_3)	1194	1210	433.9	76DB
α-Am_2S_3	orthorhombic	Pnma (La_2S_3)	398(1)	739(2)	1536(3)	71D
β-Am_2S_3	tetragonal	$I4_1/acd$ (Ce_5S_7)	1487		1973	72DMJ
η-Am_2Se_3	orthorhombic	Pnma (Sb_2S_3)	?	?	?	79DHP
η-Am_2Te_3	orthorhombic	Pnma (Sb_2S_3)	1193(3)	1212(4)	433.0(7)	72DC
α-Cm_2S_3	orthorhombic	Pnma (La_2S_3)	398	739	1535	86DDT
η-Cm_2Te_3	orthorhombic	Pnma (Sb_2S_3)	1194(2)	1213(3)	433.0(6)	76DWM
α-Bk_2S_3	orthorhombic	Pnma (La_2S_3)	?	?	?	79DHP
η-Bk_2Se_3	orthorhombic	Pnma (Sb_2S_3)	?	?	?	79DHP
ε-Bk_2Te_3	orthorhombic	Fddd (Sc_2S_3)	?	?	?	79DHP

Table C. Crystallographic data for binary actinide pnictides and chalcogenides with stoichiometry 3:5.

Compound	Symmetry	Space group (structure type)	Lattice parameters			Ref.
			a [pm]	*b* [pm]	*c* [pm]	
Th_5Bi_3	hexagonal	Mn_5Si_3	960		663	82BBF
U_3S_5	tetragonal	I4/mcm	1021		628	74SR
U_3S_5	orthorhombic	Pnma (U_3Se_5)	1172	808	743	58PF
			1174(1)	811.0(5)	742(1)	72PBPG
			1175.19(3)	810.21(2)	742.05(2)	00KB
U_3Se_5	orthorhombic	Pnma (U_3Se_5)	1243(2)	848(1)	777(1)	72MBW
		$P2_122_1$	1226(2)	845.0(5)	777(1)	61K,72BPP
U_3Te_5	orthorhombic	Pnma (U_3Se_5)	1302	872	797	77SRG
	at 300 K	Pnma (U_3Se_5)	1609.8(7)	421.0(2)	1406.0(4)	98TPN1
	at 1.4 K		1611.3(2)	420.13(5)	1407.6(2)	01TABN
Np_3S_5	orthorhombic	Pnma (U_3Se_5)	742(1)	807(1)	1171(2)	67M,69M
			745(1)	810(1)	1178(2)	81TJPD
Np_3Se_5	orthorhombic	Pnma (U_3Se_5)	779	840	1227	69M
			775	843	1224	76DB

Table D. Crystallographic data for binary actinide pnictides and chalcogenides with stoichiometry 1:2.

Compound	Symmetry	Space group (structure type)	Lattice parameters			Ref.
			a [pm]	*b* [pm]	*c* [pm]	
α-ThP_2	orthorhombic	Pnma ($ZrAs_2$)	695	942	390	66H
			not in pure state			
α-$ThAs_2$	orthorhombic	Pnma ($ZrAs_2$)	728.7(3)	978.4(4)	400.2(2)	66H
$ThAs_2$	tetragonal	P4/nmm	407.8		855.8	55F
		(anti-Cu_2Sb)	408.6		857.5	74F
$ThSb_2$	tetragonal	P4/nmm	435.3		917.2	74F
		(anti-Cu_2Sb)	435.75		917.85	87B
$ThBi_2$	tetragonal	P4/nmm	449.2		929.8	57F
		(anti-Cu_2Sb)				
ThS_2	orthorhombic	Pbnm	860.0(3)	724.9(3)	425.9(2)	49Z2
		($PbCl_2$)	861.5(4)	726.7(3)	427.3(2)	84ACG
			860.0(12)	726.0(5)	426.9(5)	93GSBD
$ThSe_2$	orthorhombic	Pnma	938	750	498	67AD
		($PbCl_2$)	906.4	761.0	442.0	87B
PaP_2	tetragonal	P4/nmm	383.8		784.5	82WDH
		(anti-Cu_2Sb)				
$PaAs_2$	tetragonal	P4/nmm	397.48		815.9	79CSRM
		(anti-Cu_2Sb)				
$PaSb_2$	tetragonal	P4/nmm	427.7		878.6	79HDC
		(anti-Cu_2Sb)				
PaS_2	orthorhombic	Pnma	718.8	852.0	413.7	87B
		($PbCl_2$)				
γ-$PaSe_2$	hexagonal	$P\bar{6}2m$	771		415	86DDT
		(anti-Fe_2P)				
α-UP_2	tetragonal	I4mm	538.6		1556.3	71PL
			538.732(5)		1556.29(2)	01WAWS
β-UP_2	tetragonal	P4/nmm	380.8		777.8	52I
		(anti-Cu_2Sb)	381.0(5)		776.49(5)	66TLC
			380.8(2)		777.0(5)	90GSBD
			380.81		777.912	01WAWS
UAs_2	tetragonal	P4/nmm	395.4		811.8	52I
		(anti-Cu_2Sb)	396.2		813.2	74F
			396.0(3)		812.0(5)	90GSBD
USb_2	tetragonal	P4/nmm	427.2		874.1	67LTMZ
		(anti-Cu_2Sb)	428.1		875.9	74F
UBi_2	tetragonal	P4/nmm	444.5		890.8	67LTMZ
		(anti-Cu_2Sb)				
α-$US_{1.82}$	tetragonal	P4/ncc	1029.3(1)		637.4(4)	84NL
α-US_2	tetragonal	P4/n	1027		631	58PF
		($SrBr_2$)	1029.3(1)		637.4(4)	89BD2
β-US_2	orthorhombic	Pnma	712	413	848	58PF
		($PbCl_2$)	711.7	412.4	847.9	67AD
			711.39(3)	412.05(3)	848.03(3)	72SGWC
γ-US_2	hexagonal	$P\bar{6}2m$	725.2		406.7	58PF
		(anti-Fe_2P)	724.73(4)		407.04(2)	97KB
			723.6(2)		406.2(1)	96DLPN
α-$USe_{1.82}$	tetragonal	P4/ncc	1076.5(1)		666.0(4)	84NL

Table D (cont.)

Compound	Symmetry	Space group (structure type)	Lattice parameters			Ref.
			a [pm]	*b* [pm]	*c* [pm]	
α-$USe_{1.88}$	tetragonal	?	1073		659	71ESS
α-USe_2	tetragonal	P4/n	1073		659	76DB
		($SrBr_2$)	1070.0		660.0	89BD1
β-USe_2	orthorhombic	Pnma	746	426	898	67AD
		($PbCl_2$)	757	426	897	74EKES
			745.5(2)	423.20(5)	896.4(2)	96NPTS
γ-USe_2	hexagonal	$P\bar{6}2m$	764		424	71ESS
		(anti-Fe_2P)	763.76(6)		419.24(2)	97KB
			763.28(3)		418.97(2)	96DLPN
UTe_{2-x}	tetragonal	P4/nmm	424.3		894.6	69KJ
		(anti-Cu_2Sb)				
UTe_{2-x}	tetragonal	P4/nmm	399.8		745.6	54F
		(ZrSiS)				
UTe_2	orthorhombic	Immm	416.17	612.76	1396.5	70KJ
			416	613	1397	75ES
			417	614	1397	79KSG
			415.9(1)	612.4(2)	1394.5(9)	88BD
			416.19(1)	612.77(2)	1396.14(1)	92BNSM
			416.22(3)	613.29(4)	1397.1(1)	96S3
$NpAs_2$	tetragonal	P4/nmm	396.2(1)		811.5(2)	73CD
		(anti-Cu_2Sb)	393.0(5)		813.7(5)	82DMBF
$NpSb_2$	orthorhombic	Cmca	617(1)	604(1)	1749(4)	77CDW
		($LaSb_2$)				
β-NpS_2	orthorhombic	Pnma	847	717	411	84TJP
		($PbCl_2$)				
$NpTe_{1.8}$	tetragonal	P4/nmm	435.5(4)		902.3(8)	82BFDC
		(anti-Cu_2Sb)				
$NpTe_2$	tetragonal	P4/nmm	442.4(3)		900.4(6)	82BFDC
		(anti-Cu_2Sb)				
$PuSb_2$	orthorhombic	Cmca	619(1)	605(1)	1758(4)	77CDW
		($LaSb_2$)				
$PuS_{1.76}$	tetragonal	P4/nmm	393.6		795.8	67AD
		(anti-Cu_2Sb)				
$PuS_{1.9}$	tetragonal	P4/nmm	394.3(3)		796.2(5)	69M
		(anti-Cu_2Sb)				
PuS_2	tetragonal	P4/nmm	397.4		794.7	67AD
		(anti-Cu_2Sb)				
$PuSe_{1.8}$	tetragonal	P4/nmm	408.8		853.9	67AD
		(anti-Cu_2Sb)	410.0(5)		836.4(5)	69M
$PuSe_{1.9}$	tetragonal	P4/nmm	417(1)		841(1)	69M
		(anti-Cu_2Sb)				
$PuSe_{1.987}$	tetragonal	P4/nmm	413.2		834.3	67AD
		(anti-Cu_2Sb)				
$PuTe_{1.81}$	tetragonal	P4/nmm	433.4		898.4	70ADJ
		(anti-Cu_2Sb)				

Table D (cont.)

Compound	Symmetry	Space group (structure type)	Lattice parameters			Ref.
			a [pm]	*b* [pm]	*c* [pm]	
$PuTe_2$	tetragonal	P4/nmm (anti-Cu_2Sb)	439.1		893.8	70ADJ
$AmSb_2$	orthorhombic	Cmca ($LaSb_2$)	618(1)	605(1)	1759(5)	77CDW
$AmS_{1.9}$	tetragonal	P4/nmm (anti-Cu_2Sb)	393.8(2)		798.1(5)	71DJ
$AmSe_{1.8}$	tetragonal	P4/nmm (anti-Cu_2Sb)	409.6(2)		834.7(5)	71DJ
$AmTe_2$	tetragonal	P4/nmm (anti-Cu_2Sb)	435.8		902.7	79BDH
CmS_2	tetragonal	P4/nmm (anti-Cu_2Sb)	392.6		801.5	86DDT
$CmSe_2$	tetragonal	P4/nmm (anti-Cu_2Sb)	409.6		839.6	86DDT
$CmTe_2$	tetragonal	P4/nmm (anti-Cu_2Sb)	432.8(7)		893(1)	76DWM
BkS_2	tetragonal	P4/nmm (anti-Cu_2Sb)	389.9		791	86DDT
$BkSe_2$	tetragonal	P4/nmm (anti-Cu_2Sb)	404		828	86DDT
$BkTe_2$	tetragonal	P4/nmm (anti-Cu_2Sb)	431.4		894.5	86DDT
CfS_2	tetragonal	P4/nmm (anti-Cu_2Sb)	387.7		788	86DDT
$CfSe_2$	tetragonal	P4/nmm (anti-Cu_2Sb)	402.4		825	86DDT
$CfTe_2$	tetragonal	P4/nmm (anti-Cu_2Sb)	430		896	86DDT

Table E. Crystallographic data for binary actinide pnictides and chalcogenides with miscellaneous stoichiometries.

Compound	Symmetry	Space group (structure type)	Lattice parameters				Ref.
			a [pm]	*b* [pm]	*c* [pm]	β	
U_5Sb_4	hexagonal	$P6_3/mcm$	923.7(2)		621.1(1)		92T, 94PRBD
α-Th_3N_4 (HT)	trigonal	$R\bar{3}m$	387.5		2739		71BA
β-Th_3N_4	monoclinic	?	695	383	620	90.7°	68JG
Th_3N_4	rhombo-hedral.	(Al_4C_3)	939.8(2)			23.788(1)°	66BZ, 87UKM
Th_7S_{12}	hexagonal	$P6_3/m$ (Th_7S_{12})	1104.1(1) 1108.6		398.3(1) 401.0		49Z3 74LDN
Th_7Se_{12}	hexagonal	$P6_3/m$ (Th_7S_{12})	1156.9		423		53D
Th_7Te_{12}	hexagonal	$P6_3/m$ (Th_7S_{12}) $P\bar{6}$	1249 1230.0(2)		435.4 456.6(1)		60GM 98TPN2

Table E (cont.)

Compound	Symmetry	Space group (structure type)	Lattice parameters				Ref.
			a [pm]	*b* [pm]	*c* [pm]	*β*	
U_7Se_{12}	hexagonal	$P6_3/m$ (Th_7S_{12})	1138.5		409.9		87B
U_7Te_{12}	hexagonal	$P6_3/m$ (Th_7S_{12})	1230.9(4)		424.2(2)		71BB
		$P\bar{6}$	1231.2(1)		426.0(1)		98TPN2
Th_2S_5	orthorhombic	Pcnb (Th_2S_5)	762.3(4)	767.7(4)	1014.1(5)		80N,82NP
Th_2Se_5	tetragonal	$P4_2/n$	562.9		1076.4		60GM
		$P4_2/nmc$	560.7		1071.5		99KB
Th_2Se_5	orthorhombic	Pcnb (Th_2S_5)	794(1)	794(1)	1072.8(5)		80N
	(pseudotetr.)		792.23(4)	793.75(4)	1071.55(3)		99KB
U_2S_5	orthorhombic (pseudotetr.)	Pcnb (Th_2S_5)	749(1)	749(1)	993.1(7)		80N
U_2Te_5	monoclinic	C2/m	3443.3(5)	418.65(3)	607.97(6)	95.35(1)°	96S2
			3442(2)	418.1(1)	607.4(3)	95.43(3)°	97TPPN
U_2Te_5	orthorhombic		426.2	993.9	1708.9		92BNSM
Np_2S_5	tetragonal		1048		984		69M
Np_2Se_5	orthorhombic	Pcnb (Th_2S_5)	772.5(3)	772.5(3)	1062.2(5)		82TPW
(two samples)	(pseudotetr.)		773.8(8)	773.8(8)	1064.4(7)		
$ThSe_3$	monoclinic	$P2_1/m$ ($ZrSe_3$)	572(1)	421(1)	964(1)	97.05°	80N
$ThTe_3$	monoclinic	$P2_1/m$ ($ZrSe_3$)	614	431	1044	98.4°	60GM
US_3	monoclinic	$P2_1/m$ ($ZrSe_3$)	540	390	1826	80°	58PF
			539	389	1822	99°30’	74EKES
			534.1	390.4	902.7	94.8°	76S
USe_3	monoclinic	$P2_1/m$ ($ZrSe_3$)	568	406	1920	80°40’	74ES
			559.2	408.4	977.2	93.9°	76S
			565.2(2)	405.6(3)	1046.9(9)	115.03(6)°	84BMR
α-UTe_3	monoclinic	$P2_1/m$ ($ZrSe_3$)	609.0	422.6	1030.2	98.0°	71BBW
			609.87(7)	422.29(4)	1032.5(1)	98.15°	92BNSM
			609.71(1)	422.06(4)	1031.2(1)	97.87(1)°	96S1
β-UTe_3	orthorhombic	Cmcm ($NdTe_3$)	433.8(2)	2474.3(10)	433.8(2)		89NL
			435.46(4)	2480.5(2)	435.795(4)		92BNSM
			435.37(3)	2479.2(10)	435.41(2)		97S1
			435.64(4)	2481.8(2)	435.96(4)		97S1
NpS_3	monoclinic	$P2_1/m$ ($ZrSe_3$)	536(1)	387(1)	1810(5)	90.5°	69M
			536	395	857	96.7°	82T
$NpSe_3$	monoclinic	$P2_1/m$ ($ZrSe_3$)	563	403	943	96.9°	69M
			566	401	1911	78°03’	76DB
$NpTe_3$	orthorhombic	Cmcm ($NdTe_3$)	434.9	2545	434.9		69M
$PuTe_3$	orthorhombic.	Cmcm ($NdTe_3$)	433.8(5)	2560(9)	433.8(5)		86DDT
$AmTe_3$	orthorhombic	Cmcm ($NdTe_3$)	433.9(5)	2557(5)	433.9(5)		86DDT
$CmTe_3$	orthorhombic.	Cmcm ($NdTe_3$)	434(2)	2570(1)	434(2)		76DWM
$BkTe_3$	orthorhombic	Cmcm ($NdTe_3$)	431.8(2)	2546.7(6)	431.8(2)		79DHP
$UTe_{3.38}$	tetragonal	?	870.3(4)		1308.6(2)		71BBW
			867.2		1301.4		76S
UTe_5	orthorhombic	Pnma or $Pn2_1a$	1791.5(5)	1040.7(3)	422.0(2)		84N2,85N1
			1792.5	1042.9	422.9		92BNSM
Th_2P_{11}	monoclinic	$P2_1/c$	1738.4	1010.4	1919.3		80VWN
ThP_7	orthorhombic	$P2_12_12_1$	1021.8	1040.1	567.1		86VV

Table F. Magnetic data for actinide pnictides and chalcogenides with stoichiometry different from 1:1. See also Table H.

Compound	T_N (T_C) [K]	p_0 [μ_B]	Para-magnetism		Curie-Weiss parameters				Ref.
					Θ [K]	p_{eff} [μ_B]	χ_0 [10^{-6}emu/mol]	Temperature range [K]	
U_5Sb_4	(86)	1.7	CW		?	2.98	–	100…300	94PRBD
U_3P_4	(138)		CW		138	2.77	–	?	63TT
			CW		144(5)	2.8	–	?	69B
			CW		140	2.75	–	140…400	71TMS
U_3As_4	(198)		CW		205(5)	2.8	–	?	69B
			CW		200	2.94	–	200…400	71TMS
U_3Sb_4	(146)		CW		155	3.04	–	160…400	71TMS
U_3Bi_4	(108)		CW		110	3.14	–	120…400	71TMS
U_3Te_4	(120)		CW		40	3.14	–	120…400	71TMS
$U_{2.67}Te_4$	20		CW		2.1	3.29	–	80…300	95SSTK
η-U_2Se_3			CW		–10	3.20	–	200…1000	67CPYM
η-U_2Te_3	(110)		MCW		107	2.87(1)	150	140…300	98TPLN
U_3S_5	(29)		CW		–26	3.34 (U^{3+} at 8d) 3.10 (U^{4+} at 4c)	–	50…250	80NP
	(28)		CW		–12	3.50	–	100…290	95S,99ST
U_3Se_5	(24)		CW		–9	3.52	–	60…290	95S,99ST, 95STK
sc $B \parallel b$			CW		–4	3.3	–	60…300	00TKN
sc $B \perp b$			CW		–5	3.4	–	60…300	00TKN
Np_3Se_5			CW		–28	3.15	–	50…200	76BFSW
U_3Te_5	(120)		MCW		117	2.69	3031.6	120…300	98TPN1
U_7Te_{12}	(50)		CW		–10	3.15	–	300…1000	72S
	(54)	1.25	CW		54	3.18(1)	–	180…300	98TPN2
UP_2	203		CW		86	2.30	–	?	63TT
	207		CW		80.5	2.29	–	?	78BFLM
			CW		90	2.29	–	10…85	72Z
			CW		–37	2.73	–	180…500	72Z
	203		$B \parallel c$	CW	129	2.5	–	207…280	02TSKP
			$B \perp c$	CW	–49	2.4	–	207…300	
UAs_2	282		CW		34	2.94	–	?	78BFLM
			CW		94	2.78	–	10…340	72Z
			CW		–90	3.18	–	340…670	72Z
	273		$B \perp c$	CW	0	2.5	–	280…300	02TSKP
			$B \perp ab$	CW	121	3.2	–	280…300	
$NpAs_2$	52		CW		53(1)	1.88(3)	–	60…300	82BFDW
$UP_{1.7}As_{0.3}$	223		$B \perp c$	CW	–30	2.4	–	230…400	02TSKP
			$B \perp ab$	CW	59	2.4	–	230…400	
USb_2	212		CW		18	3.04	–	?	78BFLM
			CW		43	3.23	–	10…700	72Z
	203		$B \perp c$	CW	–50	2.68	–	210…400	02TBSP
			$B \perp ab$	CW	80	3.32	–	250…400	

Table F (cont.)

Compound	T_N (T_C) [K]	p_0 [μ_B]	Para-magnetism	Curie-Weiss parameters				Ref.
				Θ [K]	p_{eff} [μ_B]	χ_0 [10^{-6}emu/mol]	Temperature range [K]	
$NpSb_2$	(45)	0.65	CW	–19	2.87	–	170…300	82BFDC
$PuSb_2$	21		MCW	–12	0.75	544	21…300	82BFD
UBi_2	194		CW	–53	3.40	–	?	78BFLM
			CW	–43	3.44	–	10…857	72Z
	181		$B \perp c$ CW	–95	3.1	–	200…400	02TSKP
			$B \perp ab$ CW	7	3.7	–	200…400	
β-US_2			CW	–12	3.25	–	50…300	95STK
γ-US_2	(10)		MCW	–20	2.99	648	100…300	96DLPN
α-USe_2	13		CW	?	3.28	–	20…300	95STK
β-USe_2			CW	–48	3.20	–	100…750	67CPYM, 82PSCK
	(14)		CW	?	3.20	–	40…300	95STK
γ-USe_2	(20)	0.72	MCW	21	2.89	377	40…300	96DLPN
UTe_2			CW	–67	3.21	–	60…300	79NT
			CW	–78	3.09	–	?	82PSCK
$NpTe_2$	–		CW	–56	3.04	–	140…300	82BFDC
$NpTe_{1.8}$	–		CW	–40	2.88	–	5…300	82BFDC
U_2S_5	(18)		CW	90	3.28	–	30…800	80N
Np_2Se_5	(15)		CW	16(1)	1.98(2)	–	15…70	82TPW
U_2Te_5			MCW	–48	2.83	570	100…300	97TPPN
US_3			CW	–155	3.08	–	150…300	86N
USe_3			CW	–120	2.98	–	100…300	86N
USe_3								95S
$B \parallel ab$			CW	–82	3.2	–	80…290	
$B \perp ab$			CW	–82	3.1	–	140…280	
$NpSe_3$			MCW	–81	2.34	1300	110…300	76BFSW
UTe_3	5		CW	–75	3.09	–	50…300	86N
α-UTe_3								82JSB
$B \parallel ab$			CW	–71	2.94	–	4.2…290	
$B \perp ab$			CW	–62	3.61	–	180…280	
β-UTe_3	(12)							89NL
powder			CW	18	2.91	–	60…300	
$B \parallel b$			CW	32	3.42	–	100…300	
$B \perp b$			CW	–182	3.42	–	100…300	
$NpTe_3$	(25)		MCW	9.8	2.26	560	80…280	76BFSW
UTe_5	(8)		CW	–38	3.34	–	40…300	84N2

Table G was deleted

Table H. Magnetic susceptibility characteristics of some binary actinide pnictides and chalcogenides in terms of the equation: $\chi_m^{-1} = (\frac{A}{T} + B)^{-1} + \lambda$ [71TMS,79TZ1].

Compound	Type of magnetic order	$T_{N/C}$ [K]	A [K emu/mol]	$B \cdot 10^6$ [emu/mol]	λ [mol/emu]
UP_2	AF	202	0.490	320	–180
UAs_2	AF	273	0.724	340	–100
USb_2	AF	205	0.760	580	–90
UBi_2	AF	180	1.019	770	~ 0
U_3P_4	F	138	0.92	70	140
U_3As_4	F	198	1.05	80	180
U_3Sb_4	F	146	1.12	140	125
U_3Bi_4	F	108	1.24	160	85
U_3Se_4	F	130	–	≈ 130	–40
U_3Te_4	F	120	1.24	130	25

Table I. Critical coefficients in the specific heat of U_3As_4 in comparison with theoretical predictions [80BLTH]. For definition of the coefficients see Fig. 152.

	Lattice type	Spin	α	α'	A	A'	B
Experiment	bcc complex	3/2	0.125	0.08	2.20	1.60	–2.56
Theory	bcc simple	½	0.125	–	1.11	–	–1.25
for different	3d	½	–	0.062	–	7.36	–
Ising models	tetrahedral	–	–	0.125	–	1.60	–

Table J. Hyperfine parameters of the ^{237}Np Mössbauer resonance spectra taken at T = 4.2 K for binary neptunium chalcogenides [84TJP]. The isomer shifts (IS) given are relative to $NpAl_2$. Magnetic splitting: 1 mm/s = 0.0562 MG (where μ_n = 2.8 nm for ^{237}Np). Electrical splitting: 1 mm/s = 48.02 MHz (only experimentally determined signs are given).

Compound	IS [mm/s]	e^2qQ [mm/s]	$g_o\mu_nH_{eff}$ [mm/s]	Width [mm/s]
NpS_3	–0.4(3)	–17.5(5)	54.1(6)	5.0(2)
			51.6(9)	
$NpSe_3$	6.0(5)	13(2)	56.2(8)	4.2(2)
			60.5(9)	
$NpTe_3$	26.3(3)[a])			2.7(3)[a]
Np_2Se_5	12.7(5)[a])	22(2)		4.0(5)
β-NpS_2	1.7(3)	–5(1)	68.3(1)	5.2(5)
	29.9(4)	–11(1)	45.4(2)	
Np_3S_5				4.8(2)
	–3.2(6)	3(3)	46.2(4)	
	31.1(3)	–14.0(9)	41.0(1)	
Np_3Se_5				4.8(2)
	–0.7(4)	–0.7(4)	48.0(2)	
α-Np_2S_3	26.0(3)	19(5)		3.0
	28.6(3)	38(1)		
γ-Np_2Se_3	29.5(5)	complex		5.2(2)

[a]) T = 77 K values.

Table K. Lattice parameters (crystal structure: orthorhombic, Pnma, $PbCl_2$-type) and magnetic susceptibility characteristics of solid solutions β-USe_2 – UTe_2 [82PSCK].

β-USe_2	Lattice parameters			Curie – Weiss parameters	
[mol %]	*a* [pm]	*b* [pm]	*c* [pm]	Θ [K]	p_{eff} [μ_B]
100	426	746	898	–48	3.20
75	424	760	906	48	2.86
70	427	762	909	50	2.90
65	429	766	911	54	2.86
60	431	770	914	57	2.83
57	432	772	916	60	2.91
55	433	774	917	66	2.81
52	435	777	919	70	2.86
50	436	779	920	74	2.86
47	437	781	922	79	2.86
45	438	783	924	85	2.80
40	440	787	927	92	2.81
37	441	789	929	96	2.80
0	418	614	1402	–78	3.09

Table L. dHvA frequencies and effective cyclotron masses for UX_2 pnictides as obtained from Shubnikov – de Haas measurements [01WAWS].

Branch	UP_2		UAs_2		USb_2		UBi_2	
	ω/γ [10^6 Oe]	m_c^* [m_0]	ω/γ [10^6 Oe]	m_c^* [m_0]	ω/γ [10^6 Oe]	m_c^* [m_0]	ω/γ [10^6 Oe]	m_c^* [m_0]
α	37.5	9.3	42.3	2.4	38.2	3.8	33.6	9.2
α'	33.3	6.8	–	–	–	–	–	–
β	30.8	7.5	–	–	–	–	9.1	4.4
γ	11.4	1.9	19.8	3.1	17.8	6.0	–	–
δ	–	–	15.0	2.1	12.2	3.8	–	–
ε	–	–	11.1	1.2	7.6	2.0	–	–
ζ	–	–	7.2	0.34	–	–	–	–

Table M. Lattice parameters and Curie-Weiss parameters for the cubic and orthorhombic U_2Te_{3-x} system [80SJ].

U_2Te_{3-x}	Composition	Lattice parameters			Curie – Weiss parameters*)	
	x	*a* [pm]	*b* [pm]	*c* [pm]	Θ [K]	p_{eff} [μ_B]
cubic form	0	941.2			77	2.98
	0.09	941.5			35	3.10
	0.14	941.2			23	3.49
	0.22	941.6			58	2.78
	0.33	940.9			–36	3.78
orthorh. form	0	1183	1231	445	–3	3.66
	0.09	1182	1228	445	–50	3.53
	0.16	1181	1230	444	–60	3.55
	0.20	1183	1231	440	–42	3.72
	0.33	1183	1233	445	–2	3.51

*) Calculated in the range 150…300 K for the cubic form and 70…300 K for the orthorhombic form.

Table N. Coefficients for effective crystal field in U_3As_4 [82TYK]. A_{kq} and B_{kq} are the crystal field parameters; D_{kq} are the p-f hybridization parameters. For the details see the original paper.

k	q		A_{kq}	B_{kq} [K]	$D_{kq}^{\sigma\sigma}$	$D_{kq}^{\sigma\pi}$	$D_{kq}^{\pi\pi}$
0	0				0.717	–1.719	1.082
2	0		14.94	2308.2	–4.266	10.711	–6.463
4	0		643.8	1433.7	3.267	–7.436	4.437
4	4	Re	756.4	1684.5	0.394	–1.605	1.375
		Im	–1232.6	–2744.8	–0.675	2.751	–2.357
6	0		–11841.2	–636.6	0.346	0.990	–1.732
4	4	Re	–4571.0	–245.7	–0.570	2.324	–1.991
		Im	1984.0	106.7	0.978	–3.984	3.413

Table O. Parameters of the phenomenological crystal field model and some other calculated CF and MFA characteristics for UX_2 (X = P, As, Sb) compounds [84ABM]. H_m is the molecular field intensity, λ is the molecular field constant. For meaning of the other symbols see Fig. 279. For UAs_2 two possible solutions are given.

	Δ [cm^{-1}]	Δ' [cm^{-1}]	ε	γ	$\mu_0 H_m$ [T]	λ [mol/emu]
UP_2	474	690	0.396	0.829	300	269
UAs_2	465	686	0.401	0.823	230	256
	412	834	0.503	0.703	159	177
USb_2	262	428	0.440	0.783	144	138

Table P. Magnetic structures of U_3X_4 (X = P, As, Sb, Bi) compounds [99WGH]. Experimental values of the non-collinearity angles, φ, spin, p_S, and orbital, p_L, components of the uranium magnetic moments are compared to the calculated values, taken from [97SK], obtained with the ASW method. C_2 is a coefficient in the 5f magnetic form factor within the dipole approximation. Note that for all compounds p_S and p_L are considerably reduced with respect to the free U^{4+} ion values: $p_S = -1.716\ \mu_B$ and $p_L = 4.716\ \mu_B$, and the free U^{3+} ion values: $p_S = -2.169\ \mu_B$ and $p_L = 5.585\ \mu_B$.

Compound		U_3P_4	U_3As_4	U_3Sb_4		U_3Bi_4	
Moment		$m1$, $m2$, $m3$	$m1$, $m2$, $m3$	$m1$, $m2$	$m3$	$m1$, $m2$	$m3$
Easy axis		111	111	001		001	
φ [deg]	exp.	0.0(2.3)	3.1(0.5)	0		0	
	theor.	2.13	1.91	7.03			
$p_S + p_L$ [μ_B]	exp.	1.34(6)	1.82(6)	1.72(4)	2.36(7)	1.96(4)	2.31(6)
	theor.	1.37	1.71	2.04	2.19	2.21	2.30
p_S [μ_B]	exp.	–1.06(14)	–1.33(10)	–1.45(11)	–1.28(15)	–1.29(17)	–1.32(25)
	theor.	–1.73	–1.82	–1.90	–1.99	–2.16	–2.20
p_L [μ_B]	exp.	2.40	3.15	3.17	2.36	3.25	3.63
	theor.	3.10	3.53	3.94	2.19	4.37	4.50
$-p_L / p_S$	exp.	2.27(20)	2.37(15)	2.19(14)	2.85(20)	2.51(25)	2.75(35)
	theor.	1.79	1.94	2.07	2.10	2.02	2.05
C_2		1.79	1.73	1.84	1.54	1.66	1.57

Table R. Crystallographic characteristics for $U_2N_{3.1}$ derived from neutron diffraction data taken at 4.2 and 150 K [96BT] and 300 K [67TH]. No sign of magnetic order has been found at 4.2 K [96BT] and 27 K [67TH].

Temperature [K]		4.2	150	300
Lattice parameter [nm]		1.06490(3)	1.06504(3)	1.0682(5)
Atomic positions				
U2 at 24(d)	*u*	0.9816(16)	0.9810(12)	0.982(2)
N1 at 48(e)	*x*	0.3764(14)	0.3762(12)	0.383(1)
	y	0.1509(13)	0.1509(9)	0.145(1)
	z	0.3664(25)	0.3661(16)	0.381(4)
N2 at 16(c)	*v*	0.1285(82)	0.1297(48)	0.117(13)

Table S. Crystal field parameters (in cm^{-1}) for U_3P_4 derived in the Russell-Saunders coupling scheme within the nearest-neighbours approximation [86ABHM]. See Fig. 71 for the corresponding crystal field energy levels scheme.

B_2^0	–31.68
B_4^0	–0.09892
B_6^0	–0.002345
B_4^4	–0.9338
B_4^{-4}	1.601
B_6^4	–0.008991
B_6^{-4}	–0.00188

Table T. Reduced crystal field parameters (in cm^{-1}) for Np_3As_4 derived in the Russell-Saunders coupling scheme within the nearest-neighbours approximation for the Sternheimer shielding factor σ_2 =0.8 (PCM-nn), in the refined CF model for various compositions of the CF ground state, α_1, and in the cubic limit [87ABFB]. $b_2^0 = B_2^0$, $b_4^m = 60B_4^m$, $b_6^m = 2520B_6^m$. See Fig. 184 for the corresponding crystal field energy levels schemes.

	α_1	$(1-\sigma_2)\, b_2^0$	b_4^0	b_6^0	b_4^4	b_4^4
PCM-nn	0.48	–1.6	–1.7	2.3	–31.3	5.9
Refined model	0.63	–1.4	–23.5	4.3	–33.25	7.35
	0.62	–1.4	–10.3	3.7	–33.25	7.35
	0.61	–1.4	–7.5	3.4	–33.25	7.35
	0.60	–1.4	–6.0	3.1	–33.25	7.35
	0.55	–1.4	–3.1	2.2	–33.25	7.35
	0.50	–1.4	–1.9	1.7	–33.25	7.35
Cubic limit	0.612	0	–6.65	–0.35	–33.25	7.35

Table U. Main interatomic distances (in pm) in UX_2 compounds [72Z]. For the uranium coordination polyhedron see Fig. 279a. CN – coordination number.

Compound	CN = 4 U – X1	CN = 4 U – X2	CN = 1 U – X2	CN = 4 X1 – X1
α-UP_2	(1) 289	281	281	269
	(2) 287	279	273	269
β-UP_2	289	277	276	269
UAs_2	300	288	288	280
USb_2	325	311	310	302
UBi_2	334	323	323	314

Table W. Summary of the observed Raman active modes in UY_3 compounds at T = 300 K [87NZRL]. Wavenumbers, symmetries and types of vibrations of the k = 0 modes are given. The numbers in parentheses refer to very weak features.

US_3	$\bar{\nu}$ [cm^{-1}]	(50)	62	88	98	180	234	239.5	243	297	506
	Symmetry	–	B_g	A_g	A_g	B_g	A_g	A_g	A_g	A_g	A_g
	Vibration type			External (quasi-rigid-chain motion)		Internal (chain deformation)					Diatomic S_2
USe_3	$\bar{\nu}$ [cm^{-1}]	44	59	77		96	144.5	154	165		285
	Symmetry	B_g	B_g	A_g		B_g	A_g	A_g	A_g		A_g
	Vibration type			External (quasi-rigid-chain motion)		Internal (chain deformation)					Diatomic Se_2
UTe_3	$\bar{\nu}$ [cm^{-1}]	(41)	62	67.5		83.5		102	113	133	183.5
	Symmetry	A_g	B_g	A_g		A_g		A_g	A_g	A_g	A_g
	Vibration type					Internal (chain deformation)					Diatomic Te_2