**Abstract**

**Table 1**

Experimental details

| | |
|---|---|
| Crystal data | |
| Chemical formula | $LaNi_5$ |
| $M_r$ | 432.47 |
| Crystal system, space group | Hexagonal, *P*6/*mmm* |
| Temperature (K) | 300 |
| *a*, *c* (Å) | 5.0149 (4), 3.9751 (5) |
| *V* (Å$^3$) | 86.58 (2) |
| *Z* | 1 |
| Radiation type | Mo *K*α |
| μ (mm$^{-1}$) | 38.41 |
| Crystal size (mm) | 0.14 × 0.08 × 0.07 |
| | |
| Data collection | |
| Diffractometer | Bruker D8 Venture Photon 100 CMOS |
| Absorption correction | Multi-scan (*SADABS*; Krause et al., 2015) |
| $T_{min}$, $T_{max}$ | 0.171, 0.746 |
| No. of measured, independent and observed [$I > 2\sigma(I)$] reflections | 1897, 47, 47 |
| $R_{int}$ | 0.067 |
| $(\sin \theta/\lambda)_{max}$ (Å$^{-1}$) | 0.589 |
| | |
| Refinement | |
| $R[F^2 > 2\sigma(F^2)]$, $wR(F^2)$, *S* | 0.029, 0.071, 1.37 |
| No. of reflections | 47 |
| No. of parameters | 9 |
| $\Delta\rho_{max}$, $\Delta\rho_{min}$ (e Å$^{-3}$) | 1.19, −1.07 |

Computer programs: *SHELXL2019*/1 (Sheldrick, 2019).

**References**

NOT FOUND

# full crystallographic data

## Computing details

Program(s) used to refine structure: *SHELXL2019*/1 (Sheldrick, 2019).

### (242006_a)

*Crystal data*

$LaNi_5$
$M_r$ = 432.47
Hexagonal, *P6*/*mmm*
*a* = 5.0149 (4) Å
*c* = 3.9751 (5) Å
*V* = 86.58 (2) Å$^3$
*Z* = 1
*F*(000) = 197

$D_x$ = 8.295 Mg m$^{-3}$
Mo *K*α radiation, λ = 0.71073 Å
Cell parameters from 1868 reflections
θ = 4.7–27.5°
μ = 38.41 mm$^{-1}$
*T* = 300 K
Lump, gray
0.14 × 0.08 × 0.07 mm

*Data collection*

Bruker D8 Venture Photon 100 CMOS diffractometer
phi and ω scans
Absorption correction: multi-scan (*SADABS*; Krause et al., 2015)
$T_{min}$ = 0.171, $T_{max}$ = 0.746
1897 measured reflections

47 independent reflections
47 reflections with $I > 2\sigma(I)$
$R_{int}$ = 0.067
$\theta_{max}$ = 24.8°, $\theta_{min}$ = 4.7°
*h* = −5→5
*k* = −5→5
*l* = −4→4

*Refinement*

Refinement on $F^2$
Least-squares matrix: full
$R[F^2 > 2\sigma(F^2)]$ = 0.029
$wR(F^2)$ = 0.071
*S* = 1.37
47 reflections
9 parameters

0 restraints
$w = 1/[\sigma^2(F_o^2) + (0.035P)^2 + 1.6892P]$ where $P = (F_o^2 + 2F_c^2)/3$
$(\Delta/\sigma)_{max} < 0.001$
$\Delta\rho_{max}$ = 1.19 e Å$^{-3}$
$\Delta\rho_{min}$ = −1.07 e Å$^{-3}$

*Special details*

*Geometry*. All esds (except the esd in the dihedral angle between two l.s. planes) are estimated using the full covariance matrix. The cell esds are taken into account individually in the estimation of esds in distances, angles and torsion angles; correlations between esds in cell parameters are only used when they are defined by crystal symmetry. An approximate (isotropic) treatment of cell esds is used for estimating esds involving l.s. planes.

*Fractional atomic coordinates and isotropic or equivalent isotropic displacement parameters (Å$^2$) for (242006_a)*

| | *x* | *y* | *z* | $U_{iso}$*/$U_{eq}$ |
|---|---|---|---|---|
| La1 | 0.000000 | 0.000000 | 0.000000 | 0.0061 (10) |
| Ni1 | 0.333333 | 0.666667 | 0.000000 | 0.0078 (12) |
| Ni2 | 0.500000 | 0.000000 | 0.500000 | 0.0063 (11) |

*Atomic displacement parameters (Å²) for (242006_a)*

| | $U^{11}$ | $U^{22}$ | $U^{33}$ | $U^{12}$ | $U^{13}$ | $U^{23}$ |
|---|---|---|---|---|---|---|
| La1 | 0.0041 (11) | 0.0041 (11) | 0.0100 (15) | 0.0021 (6) | 0.000 | 0.000 |
| Ni1 | 0.0083 (15) | 0.0083 (15) | 0.007 (2) | 0.0042 (7) | 0.000 | 0.000 |
| Ni2 | 0.0066 (14) | 0.0034 (18) | 0.0078 (16) | 0.0017 (9) | 0.000 | 0.000 |

*Geometric parameters (Å, º) for (242006_a)*

| | | | |
|---|---|---|---|
| La1—Ni1$^{i}$ | 2.8953 (2) | Ni1—Ni2$^{xii}$ | 2.4589 (2) |
| La1—Ni1$^{ii}$ | 2.8953 (2) | Ni1—Ni2$^{viii}$ | 2.4589 (2) |
| La1—Ni1$^{iii}$ | 2.8953 (2) | Ni1—Ni2$^{xiii}$ | 2.4589 (2) |
| La1—Ni1 | 2.8954 (2) | Ni1—Ni2$^{vi}$ | 2.4589 (2) |
| La1—Ni1$^{iv}$ | 2.8954 (2) | Ni1—Ni2$^{xiv}$ | 2.4589 (2) |
| La1—Ni1$^{v}$ | 2.8954 (2) | Ni1—Ni1$^{i}$ | 2.8953 (2) |
| La1—Ni2$^{vi}$ | 3.1996 (2) | Ni1—Ni1$^{iv}$ | 2.8954 (2) |
| La1—Ni2$^{vii}$ | 3.1996 (2) | Ni1—Ni1$^{xv}$ | 2.8954 (2) |
| La1—Ni2 | 3.1996 (2) | Ni2—Ni2$^{xvi}$ | 2.5075 (2) |
| La1—Ni2$^{viii}$ | 3.1996 (2) | Ni2—Ni2$^{xvii}$ | 2.5075 (2) |
| La1—Ni2$^{ix}$ | 3.1996 (2) | Ni2—Ni2$^{vi}$ | 2.5075 (2) |
| La1—Ni2$^{x}$ | 3.1996 (2) | Ni2—Ni2$^{xviii}$ | 2.5075 (2) |
| Ni1—Ni2$^{xi}$ | 2.4589 (2) | | |

| | | | |
|---|---|---|---|
| Ni1$^{i}$—La1—Ni1$^{ii}$ | 120.0 | Ni2$^{xiv}$—Ni1—La1$^{xix}$ | 72.880 (1) |
| Ni1$^{i}$—La1—Ni1$^{iii}$ | 180.0 | Ni1$^{i}$—Ni1—La1$^{xix}$ | 60.0 |
| Ni1$^{ii}$—La1—Ni1$^{iii}$ | 60.0 | La1$^{xii}$—Ni1—La1$^{xix}$ | 120.0 |
| Ni1$^{i}$—La1—Ni1 | 60.0 | Ni2$^{xi}$—Ni1—La1 | 72.880 (1) |
| Ni1$^{ii}$—La1—Ni1 | 180.0 | Ni2$^{xii}$—Ni1—La1 | 126.069 (4) |
| Ni1$^{iii}$—La1—Ni1 | 120.0 | Ni2$^{viii}$—Ni1—La1 | 72.880 (1) |
| Ni1$^{i}$—La1—Ni1$^{iv}$ | 120.0 | Ni2$^{xiii}$—Ni1—La1 | 126.069 (4) |
| Ni1$^{ii}$—La1—Ni1$^{iv}$ | 120.0 | Ni2$^{vi}$—Ni1—La1 | 72.880 (1) |
| Ni1$^{iii}$—La1—Ni1$^{iv}$ | 60.0 | Ni2$^{xiv}$—Ni1—La1 | 72.880 (2) |
| Ni1—La1—Ni1$^{iv}$ | 60.0 | Ni1$^{i}$—Ni1—La1 | 60.0 |
| Ni1$^{i}$—La1—Ni1$^{v}$ | 60.0 | La1$^{xii}$—Ni1—La1 | 120.0 |
| Ni1$^{ii}$—La1—Ni1$^{v}$ | 60.0 | La1$^{xix}$—Ni1—La1 | 120.0 |
| Ni1$^{iii}$—La1—Ni1$^{v}$ | 120.0 | Ni2$^{xi}$—Ni1—Ni1$^{iv}$ | 53.931 (4) |
| Ni1—La1—Ni1$^{v}$ | 120.0 | Ni2$^{xii}$—Ni1—Ni1$^{iv}$ | 107.120 (1) |
| Ni1$^{iv}$—La1—Ni1$^{v}$ | 180.0 | Ni2$^{viii}$—Ni1—Ni1$^{iv}$ | 53.931 (4) |
| Ni1$^{i}$—La1—Ni2$^{vi}$ | 47.259 (3) | Ni2$^{xiii}$—Ni1—Ni1$^{iv}$ | 107.120 (2) |
| Ni1$^{ii}$—La1—Ni2$^{vi}$ | 132.741 (3) | Ni2$^{vi}$—Ni1—Ni1$^{iv}$ | 107.120 (2) |
| Ni1$^{iii}$—La1—Ni2$^{vi}$ | 132.741 (3) | Ni2$^{xiv}$—Ni1—Ni1$^{iv}$ | 107.120 (2) |
| Ni1—La1—Ni2$^{vi}$ | 47.260 (3) | Ni1$^{i}$—Ni1—Ni1$^{iv}$ | 120.0 |
| Ni1$^{iv}$—La1—Ni2$^{vi}$ | 90.0 | La1$^{xii}$—Ni1—Ni1$^{iv}$ | 60.0 |
| Ni1$^{v}$—La1—Ni2$^{vi}$ | 90.0 | La1$^{xix}$—Ni1—Ni1$^{iv}$ | 180.0 |
| Ni1$^{i}$—La1—Ni2$^{vii}$ | 132.741 (3) | La1—Ni1—Ni1$^{iv}$ | 60.0 |
| Ni1$^{ii}$—La1—Ni2$^{vii}$ | 47.259 (3) | Ni2$^{xi}$—Ni1—Ni1$^{xv}$ | 107.120 (1) |
| Ni1$^{iii}$—La1—Ni2$^{vii}$ | 47.259 (3) | Ni2$^{xii}$—Ni1—Ni1$^{xv}$ | 53.931 (4) |
| Ni1—La1—Ni2$^{vii}$ | 132.740 (3) | Ni2$^{viii}$—Ni1—Ni1$^{xv}$ | 107.120 (2) |
| Ni1$^{iv}$—La1—Ni2$^{vii}$ | 90.0 | Ni2$^{xiii}$—Ni1—Ni1$^{xv}$ | 53.931 (4) |
| Ni1$^{v}$—La1—Ni2$^{vii}$ | 90.0 | Ni2$^{vi}$—Ni1—Ni1$^{xv}$ | 107.120 (1) |
| Ni2$^{vi}$—La1—Ni2$^{vii}$ | 180.0 | Ni2$^{xiv}$—Ni1—Ni1$^{xv}$ | 107.120 (2) |

| | |
|---|---|
| Ni1$^{i}$—La1—Ni2 | 47.260 (3) |
| Ni1$^{ii}$—La1—Ni2 | 90.0 |
| Ni1$^{iii}$—La1—Ni2 | 132.740 (4) |
| Ni1—La1—Ni2 | 90.0 |
| Ni1$^{iv}$—La1—Ni2 | 132.740 (3) |
| Ni1$^{v}$—La1—Ni2 | 47.260 (3) |
| Ni2$^{vi}$—La1—Ni2 | 46.137 (3) |
| Ni2$^{vii}$—La1—Ni2 | 133.863 (3) |
| Ni1$^{i}$—La1—Ni2$^{viii}$ | 90.0 |
| Ni1$^{ii}$—La1—Ni2$^{viii}$ | 132.740 (4) |
| Ni1$^{iii}$—La1—Ni2$^{viii}$ | 90.0 |
| Ni1—La1—Ni2$^{viii}$ | 47.260 (4) |
| Ni1$^{iv}$—La1—Ni2$^{viii}$ | 47.260 (3) |
| Ni1$^{v}$—La1—Ni2$^{viii}$ | 132.740 (3) |
| Ni2$^{vi}$—La1—Ni2$^{viii}$ | 46.137 (3) |
| Ni2$^{vii}$—La1—Ni2$^{viii}$ | 133.863 (3) |
| Ni2—La1—Ni2$^{viii}$ | 85.481 (6) |
| Ni1$^{i}$—La1—Ni2$^{ix}$ | 132.740 (4) |
| Ni1$^{ii}$—La1—Ni2$^{ix}$ | 90.0 |
| Ni1$^{iii}$—La1—Ni2$^{ix}$ | 47.260 (3) |
| Ni1—La1—Ni2$^{ix}$ | 90.0 |
| Ni1$^{iv}$—La1—Ni2$^{ix}$ | 47.260 (3) |
| Ni1$^{v}$—La1—Ni2$^{ix}$ | 132.740 (3) |
| Ni2$^{vi}$—La1—Ni2$^{ix}$ | 133.863 (3) |
| Ni2$^{vii}$—La1—Ni2$^{ix}$ | 46.137 (3) |
| Ni2—La1—Ni2$^{ix}$ | 180.0 |
| Ni2$^{viii}$—La1—Ni2$^{ix}$ | 94.519 (6) |
| Ni1$^{i}$—La1—Ni2$^{x}$ | 90.0 |
| Ni1$^{ii}$—La1—Ni2$^{x}$ | 47.260 (3) |
| Ni1$^{iii}$—La1—Ni2$^{x}$ | 90.0 |
| Ni1—La1—Ni2$^{x}$ | 132.740 (4) |
| Ni1$^{iv}$—La1—Ni2$^{x}$ | 132.740 (3) |
| Ni1$^{v}$—La1—Ni2$^{x}$ | 47.260 (3) |
| Ni2$^{vi}$—La1—Ni2$^{x}$ | 133.863 (3) |
| Ni2$^{vii}$—La1—Ni2$^{x}$ | 46.137 (3) |
| Ni2—La1—Ni2$^{x}$ | 94.519 (6) |
| Ni2$^{viii}$—La1—Ni2$^{x}$ | 180.0 |
| Ni2$^{ix}$—La1—Ni2$^{x}$ | 85.481 (6) |
| Ni2$^{xi}$—Ni1—Ni2$^{xii}$ | 145.760 (4) |
| Ni2$^{xi}$—Ni1—Ni2$^{viii}$ | 107.863 (8) |
| Ni2$^{xii}$—Ni1—Ni2$^{viii}$ | 61.311 (7) |
| Ni2$^{xi}$—Ni1—Ni2$^{xiii}$ | 61.311 (7) |
| Ni2$^{xii}$—Ni1—Ni2$^{xiii}$ | 107.863 (8) |
| Ni2$^{viii}$—Ni1—Ni2$^{xiii}$ | 145.760 (4) |
| Ni2$^{xi}$—Ni1—Ni2$^{vi}$ | 145.760 (4) |
| Ni2$^{xii}$—Ni1—Ni2$^{vi}$ | 61.311 (7) |
| Ni2$^{viii}$—Ni1—Ni2$^{vi}$ | 61.311 (7) |
| Ni2$^{xiii}$—Ni1—Ni2$^{vi}$ | 145.760 (4) |
| Ni2$^{xi}$—Ni1—Ni2$^{xiv}$ | 61.311 (7) |
| Ni2$^{xii}$—Ni1—Ni2$^{xiv}$ | 145.760 (4) |
| Ni2$^{viii}$—Ni1—Ni2$^{xiv}$ | 145.760 (4) |
| Ni1$^{i}$—Ni1—Ni1$^{xv}$ | 120.0 |
| La1$^{xii}$—Ni1—Ni1$^{xv}$ | 60.0 |
| La1$^{xix}$—Ni1—Ni1$^{xv}$ | 60.0 |
| La1—Ni1—Ni1$^{xv}$ | 180.0 |
| Ni1$^{iv}$—Ni1—Ni1$^{xv}$ | 120.0 |
| Ni1$^{xx}$—Ni2—Ni1$^{v}$ | 180.0 |
| Ni1$^{xx}$—Ni2—Ni1$^{i}$ | 107.862 (8) |
| Ni1$^{v}$—Ni2—Ni1$^{i}$ | 72.138 (8) |
| Ni1$^{xx}$—Ni2—Ni1$^{xxi}$ | 72.138 (8) |
| Ni1$^{v}$—Ni2—Ni1$^{xxi}$ | 107.862 (8) |
| Ni1$^{i}$—Ni2—Ni1$^{xxi}$ | 180.0 |
| Ni1$^{xx}$—Ni2—Ni2$^{xvi}$ | 59.345 (3) |
| Ni1$^{v}$—Ni2—Ni2$^{xvi}$ | 120.655 (3) |
| Ni1$^{i}$—Ni2—Ni2$^{xvi}$ | 59.345 (4) |
| Ni1$^{xxi}$—Ni2—Ni2$^{xvi}$ | 120.655 (4) |
| Ni1$^{xx}$—Ni2—Ni2$^{xvii}$ | 120.655 (3) |
| Ni1$^{v}$—Ni2—Ni2$^{xvii}$ | 59.345 (3) |
| Ni1$^{i}$—Ni2—Ni2$^{xvii}$ | 120.655 (4) |
| Ni1$^{xxi}$—Ni2—Ni2$^{xvii}$ | 59.345 (4) |
| Ni2$^{xvi}$—Ni2—Ni2$^{xvii}$ | 180.0 |
| Ni1$^{xx}$—Ni2—Ni2$^{vi}$ | 59.344 (4) |
| Ni1$^{v}$—Ni2—Ni2$^{vi}$ | 120.656 (4) |
| Ni1$^{i}$—Ni2—Ni2$^{vi}$ | 59.344 (4) |
| Ni1$^{xxi}$—Ni2—Ni2$^{vi}$ | 120.656 (4) |
| Ni2$^{xvi}$—Ni2—Ni2$^{vi}$ | 60.0 |
| Ni2$^{xvii}$—Ni2—Ni2$^{vi}$ | 120.0 |
| Ni1$^{xx}$—Ni2—Ni2$^{xviii}$ | 120.656 (4) |
| Ni1$^{v}$—Ni2—Ni2$^{xviii}$ | 59.344 (4) |
| Ni1$^{i}$—Ni2—Ni2$^{xviii}$ | 120.656 (4) |
| Ni1$^{xxi}$—Ni2—Ni2$^{xviii}$ | 59.344 (4) |
| Ni2$^{xvi}$—Ni2—Ni2$^{xviii}$ | 120.0 |
| Ni2$^{xvii}$—Ni2—Ni2$^{xviii}$ | 60.0 |
| Ni2$^{vi}$—Ni2—Ni2$^{xviii}$ | 180.0 |
| Ni1$^{xx}$—Ni2—La1 | 120.139 (5) |
| Ni1$^{v}$—Ni2—La1 | 59.861 (5) |
| Ni1$^{i}$—Ni2—La1 | 59.860 (5) |
| Ni1$^{xxi}$—Ni2—La1 | 120.140 (4) |
| Ni2$^{xvi}$—Ni2—La1 | 113.069 (1) |
| Ni2$^{xvii}$—Ni2—La1 | 66.931 (1) |
| Ni2$^{vi}$—Ni2—La1 | 66.931 (2) |
| Ni2$^{xviii}$—Ni2—La1 | 113.069 (2) |
| Ni1$^{xx}$—Ni2—La1$^{xxii}$ | 59.861 (5) |
| Ni1$^{v}$—Ni2—La1$^{xxii}$ | 120.139 (5) |
| Ni1$^{i}$—Ni2—La1$^{xxii}$ | 120.140 (5) |
| Ni1$^{xxi}$—Ni2—La1$^{xxii}$ | 59.860 (4) |
| Ni2$^{xvi}$—Ni2—La1$^{xxii}$ | 66.931 (1) |
| Ni2$^{xvii}$—Ni2—La1$^{xxii}$ | 113.069 (1) |
| Ni2$^{vi}$—Ni2—La1$^{xxii}$ | 113.069 (2) |
| Ni2$^{xviii}$—Ni2—La1$^{xxii}$ | 66.931 (1) |
| La1—Ni2—La1$^{xxii}$ | 180.0 |
| Ni1$^{xx}$—Ni2—La1$^{xxiii}$ | 59.860 (4) |

| | | | |
|---|---|---|---|
| Ni2$^{xiii}$—Ni1—Ni2$^{xiv}$ | 61.311 (7) | Ni1$^{v}$—Ni2—La1$^{xxiii}$ | 120.140 (4) |
| Ni2$^{vi}$—Ni1—Ni2$^{xiv}$ | 107.863 (8) | Ni1$^{i}$—Ni2—La1$^{xxiii}$ | 120.139 (5) |
| Ni2$^{xi}$—Ni1—Ni1$^{i}$ | 107.120 (2) | Ni1$^{xxi}$—Ni2—La1$^{xxiii}$ | 59.861 (5) |
| Ni2$^{xii}$—Ni1—Ni1$^{i}$ | 107.120 (2) | Ni2$^{xvi}$—Ni2—La1$^{xxiii}$ | 113.069 (1) |
| Ni2$^{viii}$—Ni1—Ni1$^{i}$ | 107.120 (2) | Ni2$^{xvii}$—Ni2—La1$^{xxiii}$ | 66.931 (1) |
| Ni2$^{xiii}$—Ni1—Ni1$^{i}$ | 107.120 (2) | Ni2$^{vi}$—Ni2—La1$^{xxiii}$ | 66.931 (1) |
| Ni2$^{vi}$—Ni1—Ni1$^{i}$ | 53.931 (4) | Ni2$^{xviii}$—Ni2—La1$^{xxiii}$ | 113.069 (1) |
| Ni2$^{xiv}$—Ni1—Ni1$^{i}$ | 53.931 (4) | La1—Ni2—La1$^{xxiii}$ | 76.805 (8) |
| Ni2$^{xi}$—Ni1—La1$^{xii}$ | 72.880 (2) | La1$^{xxii}$—Ni2—La1$^{xxiii}$ | 103.195 (8) |
| Ni2$^{xii}$—Ni1—La1$^{xii}$ | 72.880 (1) | Ni1$^{xx}$—Ni2—La1$^{xxiv}$ | 120.140 (5) |
| Ni2$^{viii}$—Ni1—La1$^{xii}$ | 72.880 (2) | Ni1$^{v}$—Ni2—La1$^{xxiv}$ | 59.860 (4) |
| Ni2$^{xiii}$—Ni1—La1$^{xii}$ | 72.880 (2) | Ni1$^{i}$—Ni2—La1$^{xxiv}$ | 59.861 (5) |
| Ni2$^{vi}$—Ni1—La1$^{xii}$ | 126.069 (4) | Ni1$^{xxi}$—Ni2—La1$^{xxiv}$ | 120.139 (5) |
| Ni2$^{xiv}$—Ni1—La1$^{xii}$ | 126.069 (4) | Ni2$^{xvi}$—Ni2—La1$^{xxiv}$ | 66.931 (2) |
| Ni1$^{i}$—Ni1—La1$^{xii}$ | 180.0 | Ni2$^{xvii}$—Ni2—La1$^{xxiv}$ | 113.069 (1) |
| Ni2$^{xi}$—Ni1—La1$^{xix}$ | 126.069 (4) | Ni2$^{vi}$—Ni2—La1$^{xxiv}$ | 113.069 (1) |
| Ni2$^{xii}$—Ni1—La1$^{xix}$ | 72.880 (1) | Ni2$^{xviii}$—Ni2—La1$^{xxiv}$ | 66.931 (1) |
| Ni2$^{viii}$—Ni1—La1$^{xix}$ | 126.069 (4) | La1—Ni2—La1$^{xxiv}$ | 103.195 (8) |
| Ni2$^{xiii}$—Ni1—La1$^{xix}$ | 72.880 (1) | La1$^{xxii}$—Ni2—La1$^{xxiv}$ | 76.805 (8) |
| Ni2$^{vi}$—Ni1—La1$^{xix}$ | 72.880 (2) | La1$^{xxiii}$—Ni2—La1$^{xxiv}$ | 180.0 |

Symmetry codes: (i) $-x+1, -y+1, -z$; (ii) $-x, -y, -z$; (iii) $x-1, y-1, z$; (iv) $-x, -y+1, -z$; (v) $x, y-1, z$; (vi) $-x+y+1, -x+1, z$; (vii) $-x+y, -x, z-1$; (viii) $-y, x-y, z$; (ix) $x-1, y, z-1$; (x) $-y, x-y-1, z-1$; (xi) $-y, x-y, z-1$; (xii) $x, y+1, z$; (xiii) $x, y+1, z-1$; (xiv) $-x+y+1, -x+1, z-1$; (xv) $-x+1, -y+2, -z$; (xvi) $-y+1, x-y, z$; (xvii) $-y, x-y-1, z$; (xviii) $-x+y+1, -x, z$; (xix) $x+1, y+1, z$; (xx) $-x+1, -y+1, -z+1$; (xxi) $x, y-1, z+1$; (xxii) $x+1, y, z+1$; (xxiii) $x, y, z+1$; (xxiv) $x+1, y, z$.