

**Representative Groups of the 343 Types of
Space-Time Crystallographic Point Groups
with Time Translations and Time Inversion**

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POINT GROUP 1 (1)

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Group 1.1.1.1 (Nonmagnetic spacetime group):

{(1 | n)}
[
(1|0)
]

Group 1.1.2.2 (Class 2 Group):

{(1 | n)}
[
(1|0) (1|0)'
]

Group 1.1.3.3 (Class 3
Group): {(1 | n)}

[
(1|0) ($\bar{1}$ |0)'
]

Group 1.1.4.4 (Class 3
Group): {(1 | n)}

[
(1|0) (2₀₀₁|0)'
]

Group 1.1.5.5 (Class 3
Group): {(1 | n)}

[
(1|0) (m₀₀₁|0)'
]

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POINT GROUP 2 (-1)

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Group 2.1.1.6 (Nonmagnetic spacetime group):

{(1 | n)}
[
(1|0) ($\bar{1}$ |0)
]

Group 2.1.2.7 (Class 2

Group): $\{(1 | n)\}$

[
(1|0) $(\bar{1}|0)$ (1|0)' $(\bar{1}|0)'$
]

Group 2.1.3.8 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) $(\bar{1}|0)$ (2₀₀₁|0)' (m₀₀₁|0)'
]

Group 2.2.1.9 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
(1|0) $(\bar{1}|\frac{1}{2})$
]

Group 2.2.2.10 (Class 2

Group): $\{(1 | n)\}$

[
(1|0) $(\bar{1}|\frac{1}{2})$ (1|0)' $(\bar{1}|\frac{1}{2})'$
]

Group 2.2.3.11 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) $(\bar{1}|\frac{1}{2})$ (2₀₀₁|0)' (m₀₀₁|\frac{1}{2})'
]

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POINT GROUP 3 (2)

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Group 3.1.1.12 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
(1|0) (2₀₀₁|0)
]

Group 3.1.2.13 (Class 2

Group): $\{(1 | n)\}$

[
(1|0) (2₀₀₁|0) (1|0)' (2₀₀₁|0)'
]

Group 3.1.3.14 (Class 3

Group): $\{(1 | n)\}$

[

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POINT GROUP 5 (2/m)

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Group 5.1.1.32 (Nonmagnetic spacetime group):

{(1 | n)}
[
(1|0) (2₀₀₁|0) ($\bar{1}$ |0) (m₀₀₁|0)
]

Group 5.1.2.33 (Class 2
Group): {(1 | n)}

[
(1|0) (2₀₀₁|0) ($\bar{1}$ |0) (m₀₀₁|0) (1|0)'
(2₀₀₁|0)' ($\bar{1}$ |0)' (m₀₀₁|0)'
]

Group 5.1.3.34 (Class 3
Group): {(1 | n)}

[
(1|0) (2₀₀₁|0) ($\bar{1}$ |0) (m₀₀₁|0) (2₀₁₀|0)'
(2₁₀₀|0)' (m₀₁₀|0)' (m₁₀₀|0)'
]

Group 5.1.4.35 (Class 3
Group): {(1 | n)}

[
(1|0) (2₀₀₁|0) ($\bar{1}$ |0) (m₀₀₁|0) (4⁺₀₀₁|0)'
(4⁻₀₀₁|0)' (4⁺₀₀₁|0)' (4⁻₀₀₁|0)'
]

Group 5.2.1.36 (Nonmagnetic spacetime group):

{(1 | n)}
[
(1|0) (2₀₀₁|½) ($\bar{1}$ |0) (m₀₀₁|½)
]

Group 5.2.2.37 (Class 2
Group): {(1 | n)}

[
(1|0) (2₀₀₁|½) ($\bar{1}$ |0) (m₀₀₁|½) (1|0)'
(2₀₀₁|½)' ($\bar{1}$ |0)' (m₀₀₁|½)'
]

Group 5.2.3.38 (Class 3
Group): {(1 | n)}

[
(1|0) (2₀₀₁|½) ($\bar{1}$ |0) (m₀₀₁|½) (2₀₁₀|0)'
(2₁₀₀|½)' (m₀₁₀|0)' (m₁₀₀|½)'
]

Group 6.1.1.46 (Nonmagnetic spacetime group):

{(1 | n)}
[
(1|0) (2₀₀₁|0) (2₀₁₀|0) (2₁₀₀|0)
]

Group 6.1.2.47 (Class 2
Group): {(1 | n)}

[
(1|0) (2₀₀₁|0) (2₀₁₀|0) (2₁₀₀|0) (1|0)'
(2₀₀₁|0)' (2₀₁₀|0)' (2₁₀₀|0)'
]

Group 6.1.3.48 (Class 3
Group): {(1 | n)}

[
(1|0) (2₀₀₁|0) (2₀₁₀|0) (2₁₀₀|0) ($\bar{1}$ |0)'
(m₀₀₁|0)' (m₀₁₀|0)' (m₁₀₀|0)'
]

Group 6.1.4.49 (Class 3
Group): {(1 | n)}

[
(1|0) (2₀₀₁|0) (2₀₁₀|0) (2₁₀₀|0) (4⁺₀₀₁|0)'
(4⁻₀₀₁|0)' (2₁₁₀|0)' (2₁₋₁₀|0)'
]

Group 6.1.5.50 (Class 3
Group): {(1 | n)}

[
(1|0) (2₀₀₁|0) (2₀₁₀|0) (2₁₀₀|0) ($\bar{4}$ ⁺₀₀₁|0)'
($\bar{4}$ ⁻₀₀₁|0)' (m₁₁₀|0)' (m₁₋₁₀|0)'
]

Group 6.2.1.51 (Nonmagnetic spacetime group):

{(1 | n)}
[
(1|0) (2₀₀₁|0) (2₀₁₀| $\frac{1}{2}$) (2₁₀₀| $\frac{1}{2}$)
]

Group 6.2.2.52 (Class 2
Group): {(1 | n)}

[
(1|0) (2₀₀₁|0) (2₀₁₀| $\frac{1}{2}$) (2₁₀₀| $\frac{1}{2}$) (1|0)'
(2₀₀₁|0)' (2₀₁₀| $\frac{1}{2}$)' (2₁₀₀| $\frac{1}{2}$)'
]

Group 6.2.3.53 (Class 3
Group): {(1 | n)}

[
(1|0) (2₀₀₁|0) (2₀₁₀| $\frac{1}{2}$) (2₁₀₀| $\frac{1}{2}$) ($\bar{1}$ |0)'
(m₀₀₁|0)' (m₀₁₀| $\frac{1}{2}$)' (m₁₀₀| $\frac{1}{2}$)'
]

Group 6.2.4.54 (Class 3
Group): {(1 | n)}

[
(1|0) (2₀₀₁|0) (2₀₁₀| $\frac{1}{2}$) (2₁₀₀| $\frac{1}{2}$) (4⁺₀₀₁|0)'
(4⁻₀₀₁|0)' (2₁₁₀| $\frac{1}{2}$)' (2₁₋₁₀| $\frac{1}{2}$)'
]

Group 6.2.5.55 (Class 3

Group): $\{(1 | n)\}$

[
 $(1|0)$ $(2_{001}|0)$ $(2_{010}|\frac{1}{2})$ $(2_{100}|\frac{1}{2})$ $(\bar{4}^{+001}|0)'$
 $(\bar{4}^{-001}|0)'$ $(m_{110}|\frac{1}{2})'$ $(m_{1-10}|\frac{1}{2})'$
]

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POINT GROUP 7 (mm2)

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Group 7.1.1.56 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
 $(1|0)$ $(2_{001}|0)$ $(m_{010}|0)$ $(m_{100}|0)$
]

Group 7.1.2.57 (Class 2

Group): $\{(1 | n)\}$

[
 $(1|0)$ $(2_{001}|0)$ $(m_{010}|0)$ $(m_{100}|0)$ $(1|0)'$
 $(2_{001}|0)'$ $(m_{010}|0)'$ $(m_{100}|0)'$
]

Group 7.1.3.58 (Class 3

Group): $\{(1 | n)\}$

[
 $(1|0)$ $(2_{001}|0)$ $(m_{010}|0)$ $(m_{100}|0)$ $(2_{010}|0)'$
 $(2_{100}|0)'$ $(\bar{1}|0)'$ $(m_{001}|0)'$
]

Group 7.1.4.59 (Class 3

Group): $\{(1 | n)\}$

[
 $(1|0)$ $(2_{001}|0)$ $(m_{010}|0)$ $(m_{100}|0)$ $(4^{+001}|0)'$
 $(4^{-001}|0)'$ $(m_{110}|0)'$ $(m_{1-10}|0)'$
]

Group 7.1.5.60 (Class 3

Group): $\{(1 | n)\}$

[
 $(1|0)$ $(2_{001}|0)$ $(m_{010}|0)$ $(m_{100}|0)$ $(2_{110}|0)'$
 $(2_{1-10}|0)'$ $(\bar{4}^{+001}|0)'$ $(\bar{4}^{-001}|0)'$
]

Group 7.2.1.61 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[

(1|0) (2001|0) (m010|½) (m100|½)

Group 7.2.2.62 (Class 2
Group): {(1 | n)}

[
(1|0) (2001|0) (m010|½) (m100|½) (1|0)'
(2001|0)' (m010|½)' (m100|½)'
]

Group 7.2.3.63 (Class 3
Group): {(1 | n)}

[
(1|0) (2001|0) (m010|½) (m100|½) (2010|0)'
(2100|0)' (I|½)' (m001|½)'
]

Group 7.2.4.64 (Class 3
Group): {(1 | n)}

[
(1|0) (2001|0) (m010|½) (m100|½) (4+001|0)'
(4-001|0)' (m110|½)' (m1-10|½)'
]

Group 7.2.5.65 (Class 3
Group): {(1 | n)}

[
(1|0) (2001|0) (m010|½) (m100|½) (2110|0)'
(21-10|0)' (4+001|½)' (4-001|½)'
]

Group 7.3.1.66 (Nonmagnetic spacetime group):
{(1 | n)}

[
(1|0) (2001|½) (m010|½) (m100|0)
]

Group 7.3.2.67 (Class 2
Group): {(1 | n)}

[
(1|0) (2001|½) (m010|½) (m100|0) (1|0)'
(2001|½)' (m010|½)' (m100|0)'
]

Group 7.3.3.68 (Class 3
Group): {(1 | n)}

[
(1|0) (2001|½) (m010|½) (m100|0) (2010|0)'
(2100|½)' (I|½)' (m001|0)'
]

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 Group 8.1.1.69 (Nonmagnetic spacetime group):

{(1 | n)}
 [
 (1|0) (2001|0) (2010|0) (2100|0) ($\bar{1}$ |0)
 (m001|0) (m010|0) (m100|0)
]

Group 8.1.2.70 (Class 2
 Group): {(1 | n)}

[
 (1|0) (2001|0) (2010|0) (2100|0) ($\bar{1}$ |0)
 (m001|0) (m010|0) (m100|0) (1|0)' (2001|0)'
 (2010|0)' (2100|0)' ($\bar{1}$ |0)' (m001|0)' (m010|0)'
 (m100|0)'
]

Group 8.1.3.71 (Class 3
 Group): {(1 | n)}

[
 (1|0) (2001|0) (2010|0) (2100|0) ($\bar{1}$ |0)
 (m001|0) (m010|0) (m100|0) (4⁺001|0)' (4⁻001|0)'
 (2110|0)' (21-10|0)' (4⁺001|0)' (4⁻001|0)' (m110|0)'
 (m1-10|0)'
]

 Group 8.2.1.72 (Nonmagnetic spacetime group):
 {(1 | n)}

[
 (1|0) (2001|0) (2010|½) (2100|½) ($\bar{1}$ |0)
 (m001|0) (m010|½) (m100|½)
]

Group 8.2.2.73 (Class 2
 Group): {(1 | n)}

[
 (1|0) (2001|0) (2010|½) (2100|½) ($\bar{1}$ |0)
 (m001|0) (m010|½) (m100|½) (1|0)' (2001|0)'
 (2010|½)' (2100|½)' ($\bar{1}$ |0)' (m001|0)' (m010|½)'
 (m100|½)'
]

Group 8.2.3.74 (Class 3
 Group): {(1 | n)}

[
 (1|0) (2001|0) (2010|½) (2100|½) ($\bar{1}$ |0)
 (m001|0) (m010|½) (m100|½) (4⁺001|0)' (4⁻001|0)'
 (2110|½)' (21-10|½)' (4⁺001|0)' (4⁻001|0)' (m110|½)'
 (m1-10|½)'
]

 Group 8.3.1.75 (Nonmagnetic spacetime group):
 {(1 | n)}

[
 (1|0) (2001|0) (2010|0) (2100|0) ($\bar{1}$ |½)
 (m001|½) (m010|½) (m100|½)
]

]

Group 8.3.2.76 (Class 2

Group): {(1 | n)}

[	(1|0)	(2001|0)	(2010|0)	(2100|0)	($\bar{1}$|\frac{1}{2})
	(m001|\frac{1}{2})	(m010|\frac{1}{2})'	(m100|\frac{1}{2})	(1|0)'	(2001|0)'
	(2010|0)'	(2100|0)'	($\bar{1}$|\frac{1}{2})'	(m001|\frac{1}{2})'	(m010|\frac{1}{2})'
	(m100|\frac{1}{2})'				
]					

Group 8.3.3.77 (Class 3

Group): {(1 | n)}

[	(1|0)	(2001|0)	(2010|0)	(2100|0)	($\bar{1}$|\frac{1}{2})
	(m001|\frac{1}{2})	(m010|\frac{1}{2})	(m100|\frac{1}{2})	(4 ⁺ 001|0)'	(4 ⁻ 001|0)'
	(2110|0)'	(21-10|0)'	($\bar{4}$ ⁺ 001|\frac{1}{2})'	($\bar{4}$ ⁻ 001|\frac{1}{2})'	(m110|\frac{1}{2})'
	(m1-10|\frac{1}{2})'				
]					

Group 8.4.1.78 (Nonmagnetic spacetime group):

{(1 | n)}

[	(1|0)	(2001|0)	(2010|\frac{1}{2})	(2100|\frac{1}{2})	($\bar{1}$|\frac{1}{2})
	(m001|\frac{1}{2})	(m010|0)	(m100|0)		
]					

Group 8.4.2.79 (Class 2

Group): {(1 | n)}

[	(1|0)	(2001|0)	(2010|\frac{1}{2})	(2100|\frac{1}{2})	($\bar{1}$|\frac{1}{2})
	(m001|\frac{1}{2})	(m010|0)	(m100|0)	(1|0)'	(2001|0)'
	(2010|\frac{1}{2})'	(2100|\frac{1}{2})'	($\bar{1}$|\frac{1}{2})'	(m001|\frac{1}{2})'	(m010|0)'
	(m100|0)'				
]					

Group 8.4.3.80 (Class 3

Group): {(1 | n)}

[	(1|0)	(2001|0)	(2010|\frac{1}{2})	(2100|\frac{1}{2})	($\bar{1}$|\frac{1}{2})
	(m001 \frac{1}{2})	(m010 0)	(m100 0)	(4 ⁺ 001 0)'	(4 ⁻ 001 0)'
	(2110 \frac{1}{2})'	(21-10 \frac{1}{2})'	($\bar{4}$ ⁺ 001 \frac{1}{2})'	($\bar{4}$ ⁻ 001 \frac{1}{2})'	(m110 0)'
	(m1-10 0)'				
]					

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POINT GROUP 9 (4)

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Group 9.1.1.81 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
(1|0) (4⁺001|0) (2001|0) (4⁻001|0)
]

Group 9.1.2.82 (Class 2

Group): $\{(1 | n)\}$

[
(1|0) (4⁺001|0) (2001|0) (4⁻001|0) (1|0)'
(4⁺001|0)' (2001|0)' (4⁻001|0)'
]

Group 9.1.3.83 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) (4⁺001|0) (2001|0) (4⁻001|0) ($\bar{1}$ |0)'
($\bar{4}$ ⁺001|0)' (m001|0)' ($\bar{4}$ ⁻001|0)'
]

Group 9.1.4.84 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) (4⁺001|0) (2001|0) (4⁻001|0) (2010|0)'
(2100|0)' (2110|0)' (21-10|0)'
]

Group 9.1.5.85 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) (4⁺001|0) (2001|0) (4⁻001|0) (m010|0)'
(m100|0)' (m110|0)' (m1-10|0)'
]

Group 9.2.1.86 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
(1|0) (4⁺001| $\frac{1}{2}$) (2001|0) (4⁻001| $\frac{1}{2}$)
]

Group 9.2.2.87 (Class 2

Group): $\{(1 | n)\}$

[
(1|0) (4⁺001| $\frac{1}{2}$) (2001|0) (4⁻001| $\frac{1}{2}$) (1|0)'
(4⁺001| $\frac{1}{2}$)' (2001|0)' (4⁻001| $\frac{1}{2}$)'
]

Group 9.2.3.88 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) (4⁺001| $\frac{1}{2}$) (2001|0) (4⁻001| $\frac{1}{2}$) ($\bar{1}$ |0)'
($\bar{4}$ ⁺001| $\frac{1}{2}$)' (m001|0)' ($\bar{4}$ ⁻001| $\frac{1}{2}$)'
]

Group 9.2.4.89 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) (4⁺001| $\frac{1}{2}$) (2001|0) (4⁻001| $\frac{1}{2}$) (2010|0)'
(2100|0)' (2110| $\frac{1}{2}$)' (21-10| $\frac{1}{2}$)'
]

Group 9.2.5.90 (Class 3

Group): $\{(1 | n)\}$

[
 $(1|0)$ $(4^{+001}|\frac{1}{2})$ $(2001|0)$ $(4^{-001}|\frac{1}{2})$ $(m010|0)'$
 $(m100|0)'$ $(m110|\frac{1}{2})'$ $(m1-10|\frac{1}{2})'$
]

 Group 9.3.1.91 (Nonmagnetic spacetime group):

{(1 | n)}
 [
 $(1|0)$ $(4^{+001}|\frac{1}{4})$ $(2001|\frac{1}{2})$ $(4^{-001}|\frac{3}{4})$
]

Group 9.3.2.92 (Class 3
 Group): {(1 | n)}

[
 $(1|0)$ $(4^{+001}|\frac{1}{4})$ $(2001|\frac{1}{2})$ $(4^{-001}|\frac{3}{4})$ $(2010|0)'$
 $(2100|\frac{1}{2})'$ $(2110|\frac{3}{4})'$ $(21-10|\frac{1}{4})'$
]

Group 9.3.3.93 (Class 3
 Group): {(1 | n)}

[
 $(1|0)$ $(4^{+001}|\frac{1}{4})$ $(2001|\frac{1}{2})$ $(4^{-001}|\frac{3}{4})$ $(m010|0)'$
 $(m100|\frac{1}{2})'$ $(m110|\frac{3}{4})'$ $(m1-10|\frac{1}{4})'$
]

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POINT GROUP 10 (-4)

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 Group 10.1.1.94 (Nonmagnetic spacetime group):

{(1 | n)}
 [
 $(1|0)$ $(2001|0)$ $(\bar{4}^{+001}|0)$ $(\bar{4}^{-001}|0)$
]

Group 10.1.2.95 (Class 2
 Group): {(1 | n)}

[
 $(1|0)$ $(2001|0)$ $(\bar{4}^{+001}|0)$ $(\bar{4}^{-001}|0)$ $(1|0)'$
 $(2001|0)'$ $(\bar{4}^{+001}|0)'$ $(\bar{4}^{-001}|0)'$
]

Group 10.1.3.96 (Class 3
 Group): {(1 | n)}

[
 $(1|0)$ $(2001|0)$ $(\bar{4}^{+001}|0)$ $(\bar{4}^{-001}|0)$ $(4^{+001}|0)'$
 $(4^{-001}|0)'$ $(\bar{1}|0)'$ $(m001|0)'$
]

 Group 11.1.1.104 (Nonmagnetic spacetime group):

{(1 | n)}
 [
 (1|0) (4⁺001|0) (2001|0) (4⁻001|0) ($\bar{1}$ |0)
 ($\bar{4}$ ⁺001|0) (m001|0) ($\bar{4}$ ⁻001|0)
]

Group 11.1.2.105 (Class 2
 Group): {(1 | n)}

[
 (1|0) (4⁺001|0) (2001|0) (4⁻001|0) ($\bar{1}$ |0)
 ($\bar{4}$ ⁺001|0) (m001|0) ($\bar{4}$ ⁻001|0) (1|0)' (4⁺001|0)'
 (2001|0)' (4⁻001|0)' ($\bar{1}$ |0)' ($\bar{4}$ ⁺001|0)' (m001|0)'
 ($\bar{4}$ ⁻001|0)'
]

Group 11.1.3.106 (Class 3
 Group): {(1 | n)}

[
 (1|0) (4⁺001|0) (2001|0) (4⁻001|0) ($\bar{1}$ |0)
 ($\bar{4}$ ⁺001|0) (m001|0) ($\bar{4}$ ⁻001|0) (2010|0)' (2100|0)'
 (2110|0)' (21-10|0)' (m010|0)' (m100|0)' (m110|0)'
 (m1-10|0)'
]

 Group 11.2.1.107 (Nonmagnetic spacetime group):
 {(1 | n)}

[
 (1|0) (4⁺001| $\frac{1}{2}$) (2001|0) (4⁻001| $\frac{1}{2}$) ($\bar{1}$ |0)
 ($\bar{4}$ ⁺001| $\frac{1}{2}$) (m001|0) ($\bar{4}$ ⁻001| $\frac{1}{2}$)
]

Group 11.2.2.108 (Class 2
 Group): {(1 | n)}

[
 (1|0) (4⁺001| $\frac{1}{2}$) (2001|0) (4⁻001| $\frac{1}{2}$) ($\bar{1}$ |0)
 ($\bar{4}$ ⁺001| $\frac{1}{2}$) (m001|0) ($\bar{4}$ ⁻001| $\frac{1}{2}$) (1|0)' (4⁺001| $\frac{1}{2}$)'
 (2001|0)' (4⁻001| $\frac{1}{2}$)' ($\bar{1}$ |0)' ($\bar{4}$ ⁺001| $\frac{1}{2}$)' (m001|0)'
 ($\bar{4}$ ⁻001| $\frac{1}{2}$)'
]

Group 11.2.3.109 (Class 3
 Group): {(1 | n)}

[
 (1|0) (4⁺001| $\frac{1}{2}$) (2001|0) (4⁻001| $\frac{1}{2}$) ($\bar{1}$ |0)
 ($\bar{4}$ ⁺001| $\frac{1}{2}$) (m001|0) ($\bar{4}$ ⁻001| $\frac{1}{2}$) (2010|0)' (2100|0)'
 (2110| $\frac{1}{2}$)' (21-10| $\frac{1}{2}$)' (m010|0)' (m100|0)' (m110| $\frac{1}{2}$)'
 (m1-10| $\frac{1}{2}$)'
]

 Group 11.3.1.110 (Nonmagnetic spacetime group):
 {(1 | n)}

[
 (1|0) (4⁺001| $\frac{1}{4}$) (2001| $\frac{1}{2}$) (4⁻001| $\frac{3}{4}$) ($\bar{1}$ |0)
 ($\bar{4}$ ⁺001| $\frac{1}{4}$) (m001| $\frac{1}{2}$) ($\bar{4}$ ⁻001| $\frac{3}{4}$)
]

Group 11.3.2.111 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) (4⁺001| $\frac{1}{2}$) (2001| $\frac{1}{2}$) (4⁻001| $\frac{3}{2}$) ($\bar{1}$ |0)
($\bar{4}$ ⁺001| $\frac{1}{2}$) (m001| $\frac{1}{2}$) ($\bar{4}$ ⁻001| $\frac{3}{2}$) (2010|0)' (2100| $\frac{1}{2}$)'
(2110| $\frac{3}{2}$)' (21-10| $\frac{1}{2}$)' (m010|0)' (m100| $\frac{1}{2}$)' (m110| $\frac{3}{2}$)'
(m1-10| $\frac{1}{2}$)'
]

Group 11.4.1.112 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
(1|0) (4⁺001|0) (2001|0) (4⁻001|0) ($\bar{1}$ | $\frac{1}{2}$)
($\bar{4}$ ⁺001| $\frac{1}{2}$) (m001| $\frac{1}{2}$) ($\bar{4}$ ⁻001| $\frac{1}{2}$)
]

Group 11.4.2.113 (Class 2

Group): $\{(1 | n)\}$

[
(1|0) (4⁺001|0) (2001|0) (4⁻001|0) ($\bar{1}$ | $\frac{1}{2}$)
($\bar{4}$ ⁺001| $\frac{1}{2}$) (m001| $\frac{1}{2}$) ($\bar{4}$ ⁻001| $\frac{1}{2}$) (1|0)' (4⁺001|0)'
(2001|0)' (4⁻001|0)' ($\bar{1}$ | $\frac{1}{2}$)' ($\bar{4}$ ⁺001| $\frac{1}{2}$)' (m001| $\frac{1}{2}$)'
($\bar{4}$ ⁻001| $\frac{1}{2}$)'
]

Group 11.4.3.114 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) (4⁺001|0) (2001|0) (4⁻001|0) ($\bar{1}$ | $\frac{1}{2}$)
($\bar{4}$ ⁺001| $\frac{1}{2}$) (m001| $\frac{1}{2}$) ($\bar{4}$ ⁻001| $\frac{1}{2}$) (2010|0)' (2100|0)'
(2110|0)' (21-10|0)' (m010| $\frac{1}{2}$)' (m100| $\frac{1}{2}$)' (m110| $\frac{1}{2}$)'
(m1-10| $\frac{1}{2}$)'
]

Group 11.5.1.115 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
(1|0) (4⁺001| $\frac{1}{2}$) (2001|0) (4⁻001| $\frac{1}{2}$) ($\bar{1}$ | $\frac{1}{2}$)
($\bar{4}$ ⁺001|0) (m001| $\frac{1}{2}$) ($\bar{4}$ ⁻001|0)
]

Group 11.5.2.116 (Class 2

Group): $\{(1 | n)\}$

[
(1|0) (4⁺001| $\frac{1}{2}$) (2001|0) (4⁻001| $\frac{1}{2}$) ($\bar{1}$ | $\frac{1}{2}$)
($\bar{4}$ ⁺001|0) (m001| $\frac{1}{2}$) ($\bar{4}$ ⁻001|0) (1|0)' (4⁺001| $\frac{1}{2}$)'
(2001|0)' (4⁻001| $\frac{1}{2}$)' ($\bar{1}$ | $\frac{1}{2}$)' ($\bar{4}$ ⁺001|0)' (m001| $\frac{1}{2}$)'
($\bar{4}$ ⁻001|0)'
]

Group 11.5.3.117 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) (4⁺001| $\frac{1}{2}$) (2001|0) (4⁻001| $\frac{1}{2}$) ($\bar{1}$ | $\frac{1}{2}$)
($\bar{4}$ ⁺001|0) (m001| $\frac{1}{2}$) ($\bar{4}$ ⁻001|0) (2010|0)' (2100|0)'
(2110| $\frac{1}{2}$)' (21-10| $\frac{1}{2}$)' (m010| $\frac{1}{2}$)' (m100| $\frac{1}{2}$)' (m110|0)'
(m1-10|0)'
]

Group 11.6.1.118 (Nonmagnetic spacetime group):

$$\{(1 | n)\}$$

$$[$$

$(1 | 0)$	$(4^{+001} | \frac{1}{2})$	$(2_{001} | \frac{1}{2})$	$(4^{-001} | \frac{3}{2})$	$(\bar{1} | \frac{1}{2})$
$(\bar{4}^{+001} | \frac{3}{2})$	$(m_{001} | 0)$	$(\bar{4}^{-001} | \frac{1}{2})$		

$$]$$

Group 11.6.2.119 (Class 3

Group): $\{(1 | n)\}$

$$[$$

$(1 | 0)$	$(4^{+001} | \frac{1}{2})$	$(2_{001} | \frac{1}{2})$	$(4^{-001} | \frac{3}{2})$	$(\bar{1} | \frac{1}{2})$
$(\bar{4}^{+001} \frac{3}{2})$	$(m_{001} 0)$	$(\bar{4}^{-001} \frac{1}{2})$	$(2_{010} 0)'$	$(2_{100} \frac{1}{2})'$
$(2_{110} \frac{3}{2})'$	$(2_{1-10} \frac{1}{2})'$	$(m_{010} \frac{1}{2})'$	$(m_{100} 0)'$	$(m_{110} \frac{1}{2})'$
$(m_{1-10} \frac{3}{2})'$				

$$]$$

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%%

POINT GROUP 12 (422)

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%%

Group 12.1.1.120 (Nonmagnetic spacetime group):

$$\{(1 | n)\}$$

$$[$$

$(1 0)$	$(4^{+001} 0)$	$(2_{001} 0)$	$(4^{-001} 0)$	$(2_{010} 0)$
$(2_{100} | 0)$	$(2_{110} | 0)$	$(2_{1-10} | 0)$		

$$]$$

Group 12.1.2.121 (Class 2

Group): $\{(1 | n)\}$

$$[$$

$(1 | 0)$	$(4^{+001} | 0)$	$(2_{001} | 0)$	$(4^{-001} | 0)$	$(2_{010} | 0)$
$(2_{100} | 0)$	$(2_{110} | 0)$	$(2_{1-10} | 0)$	$(1 | 0)'$	$(4^{+001} | 0)'$
$(2_{001} | 0)'$	$(4^{-001} | 0)'$	$(2_{010} | 0)'$	$(2_{100} | 0)'$	$(2_{110} | 0)'$
$(2_{1-10} | 0)'$				

$$]$$

Group 12.1.3.122 (Class 3

Group): $\{(1 | n)\}$

$$[$$

$(1 | 0)$	$(4^{+001} | 0)$	$(2_{001} | 0)$	$(4^{-001} | 0)$	$(2_{010} | 0)$
$(2_{100} | 0)$	$(2_{110} | 0)$	$(2_{1-10} | 0)$	$(\bar{1} | 0)'$	$(\bar{4}^{+001} | 0)'$
$(m_{001} | 0)'$	$(\bar{4}^{-001} | 0)'$	$(m_{010} | 0)'$	$(m_{100} | 0)'$	$(m_{110} | 0)'$
$(m_{1-10} | 0)'$				

$$]$$

Group 12.2.1.123 (Nonmagnetic spacetime group):

$$\{(1 | n)\}$$

$$[$$

$(1 | 0)$	$(4^{+001} | \frac{1}{2})$	$(2_{001} | 0)$	$(4^{-001} | \frac{1}{2})$	$(2_{010} | 0)$
-----------	----------------------------	-----------------	----------------------------	-----------------

(2₁₀₀|0) (2₁₁₀|½) (2₁₋₁₀|½)
]

Group 12.2.2.124 (Class 2
 Group): {(1 | n)}

[
 (1|0) (4⁺₀₀₁|½) (2₀₀₁|0) (4⁻₀₀₁|½) (2₀₁₀|0)
 (2₁₀₀|0) (2₁₁₀|½) (2₁₋₁₀|½) (1|0)' (4⁺₀₀₁|½)'
 (2₀₀₁|0)' (4⁻₀₀₁|½)' (2₀₁₀|0)' (2₁₀₀|0)' (2₁₁₀|½)'
 (2₁₋₁₀|½)'
]

Group 12.2.3.125 (Class 3
 Group): {(1 | n)}

[
 (1|0) (4⁺₀₀₁|½) (2₀₀₁|0) (4⁻₀₀₁|½) (2₀₁₀|0)
 (2₁₀₀|0) (2₁₁₀|½) (2₁₋₁₀|½) (1̄|0)' (4⁺₀₀₁|½)'
 (m₀₀₁|0)' (4⁻₀₀₁|½)' (m₀₁₀|0)' (m₁₀₀|0)' (m₁₁₀|½)'
 (m₁₋₁₀|½)'
]

 Group 12.3.1.126 (Nonmagnetic spacetime group):
 {(1 | n)}

[
 (1|0) (4⁺₀₀₁|0) (2₀₀₁|0) (4⁻₀₀₁|0) (2₀₁₀|½)
 (2₁₀₀|½) (2₁₁₀|½) (2₁₋₁₀|½)
]

Group 12.3.2.127 (Class 2
 Group): {(1 | n)}

[
 (1|0) (4⁺₀₀₁|0) (2₀₀₁|0) (4⁻₀₀₁|0) (2₀₁₀|½)
 (2₁₀₀|½) (2₁₁₀|½) (2₁₋₁₀|½) (1|0)' (4⁺₀₀₁|0)'
 (2₀₀₁|0)' (4⁻₀₀₁|0)' (2₀₁₀|½)' (2₁₀₀|½)' (2₁₁₀|½)'
 (2₁₋₁₀|½)'
]

Group 12.3.3.128 (Class 3
 Group): {(1 | n)}

[
 (1|0) (4⁺₀₀₁|0) (2₀₀₁|0) (4⁻₀₀₁|0) (2₀₁₀|½)
 (2₁₀₀|½) (2₁₁₀|½) (2₁₋₁₀|½) (1̄|0)' (4⁺₀₀₁|0)'
 (m₀₀₁|0)' (4⁻₀₀₁|0)' (m₀₁₀|½)' (m₁₀₀|½)' (m₁₁₀|½)'
 (m₁₋₁₀|½)'
]

 %%%
 %%%

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 %%%

POINT GROUP 13 (4mm)

%%
 %%%

Group 13.1.1.129 (Nonmagnetic spacetime group):

$$\{(1 \mid n)\}$$

$$[$$

$(1 \mid 0)$	$(4^{+001} \mid 0)$	$(2_{001} \mid 0)$	$(4^{-001} \mid 0)$	$(m_{010} \mid 0)$
$(m_{100} \mid 0)$	$(m_{110} \mid 0)$	$(m_{1-10} \mid 0)$		

$$]$$

Group 13.1.2.130 (Class 2

Group): $\{(1 \mid n)\}$

$$[$$

$(1 \mid 0)$	$(4^{+001} \mid 0)$	$(2_{001} \mid 0)$	$(4^{-001} \mid 0)$	$(m_{010} \mid 0)$
$(m_{100} \mid 0)$	$(m_{110} \mid 0)$	$(m_{1-10} \mid 0)$	$(1 \mid 0)'$	$(4^{+001} \mid 0)'$
$(2_{001} \mid 0)'$	$(4^{-001} \mid 0)'$	$(m_{010} \mid 0)'$	$(m_{100} \mid 0)'$	$(m_{110} \mid 0)'$
$(m_{1-10} \mid 0)'$				

$$]$$

Group 13.1.3.131 (Class 3

Group): $\{(1 \mid n)\}$

$$[$$

$(1 \mid 0)$	$(4^{+001} \mid 0)$	$(2_{001} \mid 0)$	$(4^{-001} \mid 0)$	$(m_{010} \mid 0)$
$(m_{100} \mid 0)$	$(m_{110} \mid 0)$	$(m_{1-10} \mid 0)$	$(2_{010} \mid 0)'$	$(2_{100} \mid 0)'$
$(2_{110} \mid 0)'$	$(2_{1-10} \mid 0)'$	$(\bar{1} \mid 0)'$	$(\bar{4}^{+001} \mid 0)'$	$(m_{001} \mid 0)'$
$(\bar{4}^{-001} \mid 0)'$				

$$]$$

Group 13.2.1.132 (Nonmagnetic spacetime group):

$$\{(1 \mid n)\}$$

$$[$$

$(1 \mid 0)$	$(4^{+001} \mid \frac{1}{2})$	$(2_{001} \mid 0)$	$(4^{-001} \mid \frac{1}{2})$	$(m_{010} \mid 0)$
$(m_{100} \mid 0)$	$(m_{110} \mid \frac{1}{2})$	$(m_{1-10} \mid \frac{1}{2})$		

$$]$$

Group 13.2.2.133 (Class 2

Group): $\{(1 \mid n)\}$

$$[$$

$(1 \mid 0)$	$(4^{+001} \mid \frac{1}{2})$	$(2_{001} \mid 0)$	$(4^{-001} \mid \frac{1}{2})$	$(m_{010} \mid 0)$
$(m_{100} \mid 0)$	$(m_{110} \mid \frac{1}{2})$	$(m_{1-10} \mid \frac{1}{2})$	$(1 \mid 0)'$	$(4^{+001} \mid \frac{1}{2})'$
$(2_{001} \mid 0)'$	$(4^{-001} \mid \frac{1}{2})'$	$(m_{010} \mid 0)'$	$(m_{100} \mid 0)'$	$(m_{110} \mid \frac{1}{2})'$
$(m_{1-10} \mid \frac{1}{2})'$				

$$]$$

Group 13.2.3.134 (Class 3

Group): $\{(1 \mid n)\}$

$$[$$

$(1 \mid 0)$	$(4^{+001} \mid \frac{1}{2})$	$(2_{001} \mid 0)$	$(4^{-001} \mid \frac{1}{2})$	$(m_{010} \mid 0)$
$(m_{100} \mid 0)$	$(m_{110} \mid \frac{1}{2})$	$(m_{1-10} \mid \frac{1}{2})$	$(2_{010} \mid 0)'$	$(2_{100} \mid 0)'$
$(2_{110} \mid \frac{1}{2})'$	$(2_{1-10} \mid \frac{1}{2})'$	$(\bar{1} \mid 0)'$	$(\bar{4}^{+001} \mid \frac{1}{2})'$	$(m_{001} \mid 0)'$
$(\bar{4}^{-001} \mid \frac{1}{2})'$				

$$]$$

Group 13.3.1.135 (Nonmagnetic spacetime group):

$$\{(1 \mid n)\}$$

$$[$$

$(1 \mid 0)$	$(4^{+001} \mid 0)$	$(2_{001} \mid 0)$	$(4^{-001} \mid 0)$	$(m_{010} \mid \frac{1}{2})$
$(m_{100} \mid \frac{1}{2})$	$(m_{110} \mid \frac{1}{2})$	$(m_{1-10} \mid \frac{1}{2})$		

$$]$$

Group 13.3.2.136 (Class 2

Group): $\{(1 \mid n)\}$

[

$(1|0)$	$(4^{+001}|0)$	$(2_{001}|0)$	$(4^{-001}|0)$	$(m_{010}|\frac{1}{2})$
$(m_{100}|\frac{1}{2})$	$(m_{110}|\frac{1}{2})$	$(m_{1-10}|\frac{1}{2})$	$(1|0)'$	$(4^{+001}|0)'$
$(2_{001}|0)'$	$(4^{-001}|0)'$	$(m_{010}|\frac{1}{2})'$	$(m_{100}|\frac{1}{2})'$	$(m_{110}|\frac{1}{2})'$
$(m_{1-10}|\frac{1}{2})'$				

Group 13.3.3.137 (Class 3
Group): $\{(1 | n)\}$

$(1|0)$	$(4^{+001}|0)$	$(2_{001}|0)$	$(4^{-001}|0)$	$(m_{010}|\frac{1}{2})$
$(m_{100}|\frac{1}{2})$	$(m_{110}|\frac{1}{2})$	$(m_{1-10}|\frac{1}{2})$	$(2_{010}|0)'$	$(2_{100}|0)'$
$(2_{110}|0)'$	$(2_{1-10}|0)'$	$(\bar{1}|\frac{1}{2})'$	$(\bar{4}^{+001}|\frac{1}{2})'$	$(m_{001}|\frac{1}{2})'$
$(\bar{4}^{-001}|\frac{1}{2})'$				

%%

%%

POINT GROUP 14 (-42m)

%%

Group 14.1.1.138 (Nonmagnetic spacetime group):
 $\{(1 | n)\}$

$(1|0)$	$(2_{001}|0)$	$(2_{010}|0)$	$(2_{100}|0)$	$(\bar{4}^{+001}|0)$
$(\bar{4}^{-001}|0)$	$(m_{110}|0)$	$(m_{1-10}|0)$		

Group 14.1.2.139 (Class 2
Group): $\{(1 | n)\}$

$(1|0)$	$(2_{001}|0)$	$(2_{010}|0)$	$(2_{100}|0)$	$(\bar{4}^{+001}|0)$
$(\bar{4}^{-001}|0)$	$(m_{110}|0)$	$(m_{1-10}|0)$	$(1|0)'$	$(2_{001}|0)'$
$(2_{010}|0)'$	$(2_{100}|0)'$	$(\bar{4}^{+001}|0)'$	$(\bar{4}^{-001}|0)'$	$(m_{110}|0)'$
$(m_{1-10}|0)'$				

Group 14.1.3.140 (Class 3
Group): $\{(1 | n)\}$

$(1|0)$	$(2_{001}|0)$	$(2_{010}|0)$	$(2_{100}|0)$	$(\bar{4}^{+001}|0)$
$(\bar{4}^{-001}|0)$	$(m_{110}|0)$	$(m_{1-10}|0)$	$(4^{+001}|0)'$	$(4^{-001}|0)'$
$(2_{110}|0)'$	$(2_{1-10}|0)'$	$(\bar{1}|0)'$	$(m_{001}|0)'$	$(m_{010}|0)'$
$(m_{100}|0)'$				

Group 14.2.1.141 (Nonmagnetic spacetime group):
 $\{(1 | n)\}$

$(1|0)$	$(2_{001}|0)$	$(2_{010}|0)$	$(2_{100}|0)$	$(\bar{4}^{+001}|\frac{1}{2})$
$(\bar{4}^{-001}|\frac{1}{2})$	$(m_{110}|\frac{1}{2})$	$(m_{1-10}|\frac{1}{2})$		

]

Group 14.2.2.142 (Class 2

Group): $\{(1 | n)\}$

[
 $(1|0)$ $(2_{001}|0)$ $(2_{010}|0)$ $(2_{100}|0)$ $(\bar{4}^{+001}|\frac{1}{2})$
 $(\bar{4}^{-001}|\frac{1}{2})$ $(m_{110}|\frac{1}{2})$ $(m_{1-10}|\frac{1}{2})$ $(1|0)'$ $(2_{001}|0)'$
 $(2_{010}|0)'$ $(2_{100}|0)'$ $(\bar{4}^{+001}|\frac{1}{2})'$ $(\bar{4}^{-001}|\frac{1}{2})'$ $(m_{110}|\frac{1}{2})'$
 $(m_{1-10}|\frac{1}{2})'$
]

Group 14.2.3.143 (Class 3

Group): $\{(1 | n)\}$

[
 $(1|0)$ $(2_{001}|0)$ $(2_{010}|0)$ $(2_{100}|0)$ $(\bar{4}^{+001}|\frac{1}{2})$
 $(\bar{4}^{-001}|\frac{1}{2})$ $(m_{110}|\frac{1}{2})$ $(m_{1-10}|\frac{1}{2})$ $(4^{+001}|0)'$ $(4^{-001}|0)'$
 $(2_{110}|0)'$ $(2_{1-10}|0)'$ $(\bar{1}|\frac{1}{2})'$ $(m_{001}|\frac{1}{2})'$ $(m_{010}|\frac{1}{2})'$
 $(m_{100}|\frac{1}{2})'$
]

Group 14.3.1.144 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
 $(1|0)$ $(2_{001}|0)$ $(2_{010}|\frac{1}{2})$ $(2_{100}|\frac{1}{2})$ $(\bar{4}^{+001}|\frac{1}{2})$
 $(\bar{4}^{-001}|\frac{1}{2})$ $(m_{110}|0)$ $(m_{1-10}|0)$
]

Group 14.3.2.145 (Class 2

Group): $\{(1 | n)\}$

[
 $(1|0)$ $(2_{001}|0)$ $(2_{010}|\frac{1}{2})$ $(2_{100}|\frac{1}{2})$ $(\bar{4}^{+001}|\frac{1}{2})$
 $(\bar{4}^{-001}|\frac{1}{2})$ $(m_{110}|0)$ $(m_{1-10}|0)$ $(1|0)'$ $(2_{001}|0)'$
 $(2_{010}|\frac{1}{2})'$ $(2_{100}|\frac{1}{2})'$ $(\bar{4}^{+001}|\frac{1}{2})'$ $(\bar{4}^{-001}|\frac{1}{2})'$ $(m_{110}|0)'$
 $(m_{1-10}|0)'$
]

Group 14.3.3.146 (Class 3

Group): $\{(1 | n)\}$

[
 $(1|0)$ $(2_{001}|0)$ $(2_{010}|\frac{1}{2})$ $(2_{100}|\frac{1}{2})$ $(\bar{4}^{+001}|\frac{1}{2})$
 $(\bar{4}^{-001}|\frac{1}{2})$ $(m_{110}|0)$ $(m_{1-10}|0)$ $(4^{+001}|0)'$ $(4^{-001}|0)'$
 $(2_{110}|\frac{1}{2})'$ $(2_{1-10}|\frac{1}{2})'$ $(\bar{1}|\frac{1}{2})'$ $(m_{001}|\frac{1}{2})'$ $(m_{010}|0)'$
 $(m_{100}|0)'$
]

Group 14.4.1.147 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
 $(1|0)$ $(2_{001}|0)$ $(2_{010}|\frac{1}{2})$ $(2_{100}|\frac{1}{2})$ $(\bar{4}^{+001}|0)$
 $(\bar{4}^{-001}|0)$ $(m_{110}|\frac{1}{2})$ $(m_{1-10}|\frac{1}{2})$
]

Group 14.4.2.148 (Class 2

Group): $\{(1 | n)\}$

[
 $(1|0)$ $(2_{001}|0)$ $(2_{010}|\frac{1}{2})$ $(2_{100}|\frac{1}{2})$ $(\bar{4}^{+001}|0)$
 $(\bar{4}^{-001}|0)$ $(m_{110}|\frac{1}{2})$ $(m_{1-10}|\frac{1}{2})$ $(1|0)'$ $(2_{001}|0)'$
 $(2_{010}|\frac{1}{2})'$ $(2_{100}|\frac{1}{2})'$ $(\bar{4}^{+001}|0)'$ $(\bar{4}^{-001}|0)'$ $(m_{110}|\frac{1}{2})'$
 $(m_{1-10}|\frac{1}{2})'$
]

Group 14.4.3.149 (Class 3

Group): $\{(1 | n)\}$

[
 $(1|0)$ $(2_{001}|0)$ $(2_{010}|\frac{1}{2})$ $(2_{100}|\frac{1}{2})$ $(\bar{4}^{+001}|0)$
 $(\bar{4}^{-001}|0)$ $(m_{110}|\frac{1}{2})$ $(m_{1-10}|\frac{1}{2})$ $(4^{+001}|0)'$ $(4^{-001}|0)'$
 $(2_{110}|\frac{1}{2})'$ $(2_{1-10}|\frac{1}{2})'$ $(\bar{1}|0)'$ $(m_{001}|0)'$ $(m_{010}|\frac{1}{2})'$
 $(m_{100}|\frac{1}{2})'$
]

 %%%
 %%%

%%
 %%%

POINT GROUP 15 (4/mmm)

%%
 %%%

Group 15.1.1.150 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
 $(1|0)$ $(4^{+001}|0)$ $(2_{001}|0)$ $(4^{-001}|0)$ $(2_{010}|0)$
 $(2_{100}|0)$ $(2_{110}|0)$ $(2_{1-10}|0)$ $(\bar{1}|0)$ $(\bar{4}^{+001}|0)$
 $(m_{001}|0)$ $(\bar{4}^{-001}|0)$ $(m_{010}|0)$ $(m_{100}|0)$ $(m_{110}|0)$
 $(m_{1-10}|0)$
]

Group 15.1.2.151 (Class 2

Group): $\{(1 | n)\}$

[
 $(1|0)$ $(4^{+001}|0)$ $(2_{001}|0)$ $(4^{-001}|0)$ $(2_{010}|0)$
 $(2_{100}|0)$ $(2_{110}|0)$ $(2_{1-10}|0)$ $(\bar{1}|0)$ $(\bar{4}^{+001}|0)$
 $(m_{001}|0)$ $(\bar{4}^{-001}|0)$ $(m_{010}|0)$ $(m_{100}|0)$ $(m_{110}|0)$
 $(m_{1-10}|0)$ $(1|0)'$ $(4^{+001}|0)'$ $(2_{001}|0)'$ $(4^{-001}|0)'$
 $(2_{010}|0)'$ $(2_{100}|0)'$ $(2_{110}|0)'$ $(2_{1-10}|0)'$ $(\bar{1}|0)'$
 $(\bar{4}^{+001}|0)'$ $(m_{001}|0)'$ $(\bar{4}^{-001}|0)'$ $(m_{010}|0)'$ $(m_{100}|0)'$
 $(m_{110}|0)'$ $(m_{1-10}|0)'$
]

Group 15.2.1.152 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
 $(1|0)$ $(4^{+001}|\frac{1}{2})$ $(2_{001}|0)$ $(4^{-001}|\frac{1}{2})$ $(2_{010}|0)$
 $(2_{100}|0)$ $(2_{110}|\frac{1}{2})$ $(2_{1-10}|\frac{1}{2})$ $(\bar{1}|0)$ $(\bar{4}^{+001}|\frac{1}{2})$
 $(m_{001}|0)$ $(\bar{4}^{-001}|\frac{1}{2})$ $(m_{010}|0)$ $(m_{100}|0)$ $(m_{110}|\frac{1}{2})$
 $(m_{1-10}|\frac{1}{2})$
]

Group 15.2.2.153 (Class 2

Group): $\{(1 | n)\}$

[
 $(1|0)$ $(4^{+001}|\frac{1}{2})$ $(2_{001}|0)$ $(4^{-001}|\frac{1}{2})$ $(2_{010}|0)$
 $(2_{100}|0)$ $(2_{110}|\frac{1}{2})$ $(2_{1-10}|\frac{1}{2})$ $(\bar{1}|0)$ $(\bar{4}^{+001}|\frac{1}{2})$
 $(m_{001}|0)$ $(\bar{4}^{-001}|\frac{1}{2})$ $(m_{010}|0)$ $(m_{100}|0)$ $(m_{110}|\frac{1}{2})$
]

$(m_{1-10} | \frac{1}{2})'$	$(1 | 0)'$	$(4^{+001} | \frac{1}{2})'$	$(2_{001} | 0)'$	$(4^{-001} | \frac{1}{2})'$
$(2_{010} | 0)'$	$(2_{100} | 0)'$	$(2_{110} | \frac{1}{2})'$	$(2_{1-10} | \frac{1}{2})'$	$(\bar{1} | 0)'$
$(\bar{4}^{+001} | \frac{1}{2})'$	$(m_{001} | 0)'$	$(\bar{4}^{-001} | \frac{1}{2})'$	$(m_{010} | 0)'$	$(m_{100} | 0)'$
$(m_{110} | \frac{1}{2})'$	$(m_{1-10} | \frac{1}{2})'$			

]

Group 15.3.1.154 (Nonmagnetic spacetime group):

{(1 | n)}

$(1 | 0)$	$(4^{+001} | 0)$	$(2_{001} | 0)$	$(4^{-001} | 0)$	$(2_{010} | \frac{1}{2})$
$(2_{100} | \frac{1}{2})$	$(2_{110} | \frac{1}{2})$	$(2_{1-10} | \frac{1}{2})$	$(\bar{1} | 0)$	$(\bar{4}^{+001} | 0)$
$(m_{001} | 0)$	$(\bar{4}^{-001} | 0)$	$(m_{010} | \frac{1}{2})$	$(m_{100} | \frac{1}{2})$	$(m_{110} | \frac{1}{2})$
$(m_{1-10} | \frac{1}{2})$				

]

Group 15.3.2.155 (Class 2

Group): {(1 | n)}

$(1 | 0)$	$(4^{+001} | 0)$	$(2_{001} | 0)$	$(4^{-001} | 0)$	$(2_{010} | \frac{1}{2})$
$(2_{100} | \frac{1}{2})$	$(2_{110} | \frac{1}{2})$	$(2_{1-10} | \frac{1}{2})$	$(\bar{1} | 0)$	$(\bar{4}^{+001} | 0)$
$(m_{001} | 0)$	$(\bar{4}^{-001} | 0)$	$(m_{010} | \frac{1}{2})$	$(m_{100} | \frac{1}{2})$	$(m_{110} | \frac{1}{2})$
$(m_{1-10} | \frac{1}{2})$	$(1 | 0)'$	$(4^{+001} | 0)'$	$(2_{001} | 0)'$	$(4^{-001} | 0)'$
$(2_{010} | \frac{1}{2})'$	$(2_{100} | \frac{1}{2})'$	$(2_{110} | \frac{1}{2})'$	$(2_{1-10} | \frac{1}{2})'$	$(\bar{1} | 0)'$
$(\bar{4}^{+001} | 0)'$	$(m_{001} | 0)'$	$(\bar{4}^{-001} | 0)'$	$(m_{010} | \frac{1}{2})'$	$(m_{100} | \frac{1}{2})'$
$(m_{110} | \frac{1}{2})'$	$(m_{1-10} | \frac{1}{2})'$			

]

Group 15.4.1.156 (Nonmagnetic spacetime group):

{(1 | n)}

$(1 | 0)$	$(4^{+001} | 0)$	$(2_{001} | 0)$	$(4^{-001} | 0)$	$(2_{010} | 0)$
$(2_{100} | 0)$	$(2_{110} | 0)$	$(2_{1-10} | 0)$	$(\bar{1} | \frac{1}{2})$	$(\bar{4}^{+001} | \frac{1}{2})$
$(m_{001} | \frac{1}{2})$	$(\bar{4}^{-001} | \frac{1}{2})$	$(m_{010} | \frac{1}{2})$	$(m_{100} | \frac{1}{2})$	$(m_{110} | \frac{1}{2})$
$(m_{1-10} | \frac{1}{2})$				

]

Group 15.4.2.157 (Class 2

Group): {(1 | n)}

$(1 | 0)$	$(4^{+001} | 0)$	$(2_{001} | 0)$	$(4^{-001} | 0)$	$(2_{010} | 0)$
$(2_{100} | 0)$	$(2_{110} | 0)$	$(2_{1-10} | 0)$	$(\bar{1} | \frac{1}{2})$	$(\bar{4}^{+001} | \frac{1}{2})$
$(m_{001} | \frac{1}{2})$	$(\bar{4}^{-001} | \frac{1}{2})$	$(m_{010} | \frac{1}{2})$	$(m_{100} | \frac{1}{2})$	$(m_{110} | \frac{1}{2})$
$(m_{1-10} | \frac{1}{2})$	$(1 | 0)'$	$(4^{+001} | 0)'$	$(2_{001} | 0)'$	$(4^{-001} | 0)'$
$(2_{010} | 0)'$	$(2_{100} | 0)'$	$(2_{110} | 0)'$	$(2_{1-10} | 0)'$	$(\bar{1} | \frac{1}{2})'$
$(\bar{4}^{+001} | \frac{1}{2})'$	$(m_{001} | \frac{1}{2})'$	$(\bar{4}^{-001} | \frac{1}{2})'$	$(m_{010} | \frac{1}{2})'$	$(m_{100} | \frac{1}{2})'$
$(m_{110} | \frac{1}{2})'$	$(m_{1-10} | \frac{1}{2})'$			

]

Group 15.5.1.158 (Nonmagnetic spacetime group):

{(1 | n)}

$(1 | 0)$	$(4^{+001} | \frac{1}{2})$	$(2_{001} | 0)$	$(4^{-001} | \frac{1}{2})$	$(2_{010} | 0)$
$(2_{100} | 0)$	$(2_{110} | \frac{1}{2})$	$(2_{1-10} | \frac{1}{2})$	$(\bar{1} | \frac{1}{2})$	$(\bar{4}^{+001} | 0)$
$(m_{001} | \frac{1}{2})$	$(\bar{4}^{-001} | 0)$	$(m_{010} | \frac{1}{2})$	$(m_{100} | \frac{1}{2})$	$(m_{110} | 0)$
$(m_{1-10} | 0)$				

]

Group 15.5.2.159 (Class 2

Group): {(1 | n)}


```

[
(1|0)          (4+001|½)      (2001|0)      (4-001|½)      (2010|0)
(2100|0)      (2110|½)      (21-10|½)    (1̄|½)          (4+001|0)
(m001|½)      (4-001|0)      (m010|½)     (m100|½)       (m110|0)
(m1-10|0)     (1|0)'         (4+001|½)'   (2001|0)'      (4-001|½)'
(2010|0)'     (2100|0)'      (2110|½)'    (21-10|½)'     (1̄|½)'
(4+001|0)'    (m001|½)'      (4-001|0)'   (m010|½)'      (m100|½)'
(m110|0)'     (m1-10|0)'
]

```

Group 15.6.1.160 (Nonmagnetic spacetime group):

{(1 | n)}

```

[
(1|0)          (4+001|0)      (2001|0)      (4-001|0)      (2010|½)
(2100|½)      (2110|½)      (21-10|½)    (1̄|½)          (4+001|½)
(m001|½)      (4-001|½)     (m010|0)     (m100|0)       (m110|0)
(m1-10|0)
]

```

Group 15.6.2.161 (Class 2

Group): {(1 | n)}

```

[
(1|0)          (4+001|0)      (2001|0)      (4-001|0)      (2010|½)
(2100|½)      (2110|½)      (21-10|½)    (1̄|½)          (4+001|½)
(m001|½)      (4-001|½)     (m010|0)     (m100|0)       (m110|0)
(m1-10|0)     (1|0)'         (4+001|0)'   (2001|0)'      (4-001|0)'
(2010|½)'     (2100|½)'      (2110|½)'    (21-10|½)'     (1̄|½)'
(4+001|½)'    (m001|½)'      (4-001|½)'   (m010|0)'      (m100|0)'
(m110|0)'     (m1-10|0)'
]

```

%%%

%%%

%%%

%%%

POINT GROUP 16 (3)

%%%

%%%

Group 16.1.1.162 (Nonmagnetic spacetime group):

{(1 | n)}

```

[
(1|0)          (3+001|0)      (3-001|0)
]

```

Group 16.1.2.163 (Class 2

Group): {(1 | n)}

```

[
(1|0)          (3+001|0)      (3-001|0)      (1|0)'         (3+001|0)'
(3-001|0)'
]

```

Group 16.1.3.164 (Class 3

Group):

%%%

POINT GROUP 17 (-3)

%%%
%%%

Group 17.1.1.172 (Nonmagnetic spacetime group):

{(1 | n)}
[
(1|0) (3⁺001|0) (3⁻001|0) ($\bar{1}$ |0) ($\bar{3}^+$ 001|0)
($\bar{3}^-$ 001|0)
]

Group 17.1.2.173 (Class 2
Group): {(1 | n)}

[
(1|0) (3⁺001|0) (3⁻001|0) ($\bar{1}$ |0) ($\bar{3}^+$ 001|0)
($\bar{3}^-$ 001|0) (1|0)' (3⁺001|0)'
($\bar{3}^+$ 001|0)' ($\bar{3}^-$ 001|0)'
]

Group 17.1.3.174 (Class 3
Group): {(1 | n)}

[
(1|0) (3⁺001|0) (3⁻001|0) ($\bar{1}$ |0) ($\bar{3}^+$ 001|0)
($\bar{3}^-$ 001|0) (2₁₋₁₀|0)' (2₁₂₀|0)' (2₂₁₀|0)' (m₁₋₁₀|0)'
(m₁₂₀|0)' (m₂₁₀|0)'
]

Group 17.1.4.175 (Class 3
Group): {(1 | n)}

[
(1|0) (3⁺001|0) (3⁻001|0) ($\bar{1}$ |0) ($\bar{3}^+$ 001|0)
($\bar{3}^-$ 001|0) (6⁺001|0)' (2₀₀₁|0)' (6⁻001|0)' (6⁺001|0)'
(m₀₀₁|0)' (6⁻001|0)'
]

Group 17.2.1.176 (Nonmagnetic spacetime group):

{(1 | n)}
[
(1|0) (3⁺001|1/3) (3⁻001|2/3) ($\bar{1}$ |0) ($\bar{3}^+$ 001|1/3)
($\bar{3}^-$ 001|2/3)
]

Group 17.2.2.177 (Class 3
Group): {(1 | n)}

[
(1|0) (3⁺001|1/3) (3⁻001|2/3) ($\bar{1}$ |0) ($\bar{3}^+$ 001|1/3)
($\bar{3}^-$ 001|2/3) (2₁₋₁₀|0)' (2₁₂₀|2/3)' (2₂₁₀|1/3)' (m₁₋₁₀|0)'
(m₁₂₀|2/3)' (m₂₁₀|1/3)'
]

Group 17.3.1.178 (Nonmagnetic spacetime group):

{(1 | n)}
[
(1|0) (3⁺001|0) (3⁻001|0) ($\bar{1}$ |1/2) ($\bar{3}^+$ 001|1/2)
($\bar{3}^-$ 001|1/2)
]

Group 17.3.2.179 (Class 2

Group): {(1 | n)}

[	(1|0)	(3 ⁺ 001|0)	(3 ⁻ 001|0)	($\bar{1}$|$\frac{1}{2}$)	($\bar{3}^+$ 001|$\frac{1}{2}$)
	($\bar{3}^-$ 001|$\frac{1}{2}$)	(1|0)'	(3 ⁺ 001|0)'	(3 ⁻ 001|0)'	($\bar{1}$|$\frac{1}{2}$)'
	($\bar{3}^+$ 001|$\frac{1}{2}$)'	($\bar{3}^-$ 001|$\frac{1}{2}$)'			
]					

Group 17.3.3.180 (Class 3

Group): {(1 | n)}

[	(1|0)	(3 ⁺ 001|0)	(3 ⁻ 001|0)	($\bar{1}$|$\frac{1}{2}$)	($\bar{3}^+$ 001|$\frac{1}{2}$)
	($\bar{3}^-$ 001|$\frac{1}{2}$)	(2 ₁₋₁₀|0)'	(2 ₁₂₀|0)'	(2 ₂₁₀|0)'	(m ₁₋₁₀|$\frac{1}{2}$)'
	(m ₁₂₀|$\frac{1}{2}$)'	(m ₂₁₀|$\frac{1}{2}$)'			
]					

Group 17.3.4.181 (Class 3

Group): {(1 | n)}

[	(1|0)	(3 ⁺ 001|0)	(3 ⁻ 001|0)	($\bar{1}$|$\frac{1}{2}$)	($\bar{3}^+$ 001|$\frac{1}{2}$)
	($\bar{3}^-$ 001|$\frac{1}{2}$)	(6 ⁺ 001|0)'	(2 ₀₀₁|0)'	(6 ⁻ 001|0)'	($\bar{6}^+$ 001|$\frac{1}{2}$)'
	(m ₀₀₁|$\frac{1}{2}$)'	($\bar{6}^-$ 001|$\frac{1}{2}$)'			
]					

Group 17.4.1.182 (Nonmagnetic spacetime group):

{(1 | n)}

[	(1|0)	(3 ⁺ 001|$\frac{1}{3}$)	(3 ⁻ 001|$\frac{2}{3}$)	($\bar{1}$|$\frac{1}{2}$)	($\bar{3}^+$ 001|$\frac{5}{6}$)
	($\bar{3}^-$ 001|$\frac{1}{6}$)				
]					

Group 17.4.2.183 (Class 3

Group): {(1 | n)}

[	(1|0)	(3 ⁺ 001|$\frac{1}{3}$)	(3 ⁻ 001|$\frac{2}{3}$)	($\bar{1}$|$\frac{1}{2}$)	($\bar{3}^+$ 001|$\frac{5}{6}$)
	($\bar{3}^-$ 001|$\frac{1}{6}$)	(2 ₁₋₁₀|0)'	(2 ₁₂₀|$\frac{1}{3}$)'	(2 ₂₁₀|$\frac{1}{3}$)'	(m ₁₋₁₀|$\frac{1}{2}$)'
	(m ₁₂₀|$\frac{1}{6}$)'	(m ₂₁₀|$\frac{5}{6}$)'			
]					

%%
%%

%%
%%

POINT GROUP 18 (32)

%%
%%

Group 18.1.1.184 (Nonmagnetic spacetime group):

{(1 | n)}

[	(1|0)	(3 ⁺ 001|0)	(3 ⁻ 001|0)	(2 ₁₋₁₀|0)	(2 ₁₂₀|0)
	(2 ₂₁₀|0)				

]

Group 18.1.2.185 (Class 2)

Group): $\{(1 | n)\}$

[
(1|0) (3⁺001|0) (3⁻001|0) (2₁₋₁₀|0) (2₁₂₀|0)
(2₂₁₀|0) (1|0)' (3⁺001|0)' (3⁻001|0)' (2₁₋₁₀|0)'
(2₁₂₀|0)' (2₂₁₀|0)'
]

Group 18.1.3.186 (Class 3)

Group): $\{(1 | n)\}$

[
(1|0) (3⁺001|0) (3⁻001|0) (2₁₋₁₀|0) (2₁₂₀|0)
(2₂₁₀|0) ($\bar{1}$ |0)' ($\bar{3}^+$ 001|0)' ($\bar{3}^-$ 001|0)' (m₁₋₁₀|0)'
(m₁₂₀|0)' (m₂₁₀|0)'
]

Group 18.1.4.187 (Class 3)

Group): $\{(1 | n)\}$

[
(1|0) (3⁺001|0) (3⁻001|0) (2₁₋₁₀|0) (2₁₂₀|0)
(2₂₁₀|0) (6⁺001|0)' (2₀₀₁|0)' (6⁻001|0)' (2₀₁₀|0)'
(2₁₀₀|0)' (2₁₁₀|0)'
]

Group 18.1.5.188 (Class 3)

Group): $\{(1 | n)\}$

[
(1|0) (3⁺001|0) (3⁻001|0) (2₁₋₁₀|0) (2₁₂₀|0)
(2₂₁₀|0) ($\bar{6}^+$ 001|0)' (m₀₀₁|0)' ($\bar{6}^-$ 001|0)' (m₀₁₀|0)'
(m₁₀₀|0)' (m₁₁₀|0)'
]

Group 18.2.1.189 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
(1|0) (3⁺001|0) (3⁻001|0) (2₁₋₁₀| $\frac{1}{2}$) (2₁₂₀| $\frac{1}{2}$)
(2₂₁₀| $\frac{1}{2}$)
]

Group 18.2.2.190 (Class 2)

Group): $\{(1 | n)\}$

[
(1|0) (3⁺001|0) (3⁻001|0) (2₁₋₁₀| $\frac{1}{2}$) (2₁₂₀| $\frac{1}{2}$)
(2₂₁₀| $\frac{1}{2}$) (1|0)' (3⁺001|0)' (3⁻001|0)' (2₁₋₁₀| $\frac{1}{2}$)'
(2₁₂₀| $\frac{1}{2}$)' (2₂₁₀| $\frac{1}{2}$)'
]

Group 18.2.3.191 (Class 3)

Group): $\{(1 | n)\}$

[
(1|0) (3⁺001|0) (3⁻001|0) (2₁₋₁₀| $\frac{1}{2}$) (2₁₂₀| $\frac{1}{2}$)
(2₂₁₀| $\frac{1}{2}$) ($\bar{1}$ |0)' ($\bar{3}^+$ 001|0)' ($\bar{3}^-$ 001|0)' (m₁₋₁₀| $\frac{1}{2}$)'
(m₁₂₀| $\frac{1}{2}$)' (m₂₁₀| $\frac{1}{2}$)'
]

Group 18.2.4.192 (Class 3)

Group): $\{(1 | n)\}$

[
(1|0) (3⁺001|0) (3⁻001|0) (2₁₋₁₀| $\frac{1}{2}$) (2₁₂₀| $\frac{1}{2}$)
(2₂₁₀| $\frac{1}{2}$) (6⁺001|0)' (2₀₀₁|0)' (6⁻001|0)' (2₀₁₀| $\frac{1}{2}$)'
(2₁₀₀| $\frac{1}{2}$)' (2₁₁₀| $\frac{1}{2}$)'
]

]

Group 18.2.5.193 (Class 3

Group): {(1 | n)}

[

$(1|0)$	$(3^{+001}|0)$	$(3^{-001}|0)$	$(2_{1-10}|\frac{1}{2})$	$(2_{120}|\frac{1}{2})$
$(2_{210}|\frac{1}{2})$	$(\bar{6}^{+001}|0)'$	$(m_{001}|0)'$	$(\bar{6}^{-001}|0)'$	$(m_{010}|\frac{1}{2})'$
$(m_{100}|\frac{1}{2})'$	$(m_{110}|\frac{1}{2})'$			

]

%%
 %%%

%%
 %%%

POINT GROUP 19 (3m)

%%
 %%%

Group 19.1.1.194 (Nonmagnetic spacetime group):

{(1 | n)}

[

$(1|0)$	$(3^{+001}|0)$	$(3^{-001}|0)$	$(m_{010}|0)$	$(m_{100}|0)$
$(m_{110}|0)$				

]

Group 19.1.2.195 (Class 2

Group): {(1 | n)}

[

$(1|0)$	$(3^{+001}|0)$	$(3^{-001}|0)$	$(m_{010}|0)$	$(m_{100}|0)$
$(m_{110}|0)$	$(1|0)'$	$(3^{+001}|0)'$	$(3^{-001}|0)'$	$(m_{010}|0)'$
$(m_{100}|0)'$	$(m_{110}|0)'$			

]

Group 19.1.3.196 (Class 3

Group): {(1 | n)}

[

$(1|0)$	$(3^{+001}|0)$	$(3^{-001}|0)$	$(m_{010}|0)$	$(m_{100}|0)$
$(m_{110}|0)$	$(2_{010}|0)'$	$(2_{100}|0)'$	$(2_{110}|0)'$	$(\bar{1}|0)'$
$(\bar{3}^{+001}|0)'$	$(\bar{3}^{-001}|0)'$			

]

Group 19.1.4.197 (Class 3

Group): {(1 | n)}

[

$(1|0)$	$(3^{+001}|0)$	$(3^{-001}|0)$	$(m_{010}|0)$	$(m_{100}|0)$
$(m_{110}|0)$	$(6^{+001}|0)'$	$(2_{001}|0)'$	$(6^{-001}|0)'$	$(m_{1-10}|0)'$
$(m_{120}|0)'$	$(m_{210}|0)'$			

]

Group 19.1.5.198 (Class 3

Group): {(1 | n)}

[

$(1|0)$	$(3^{+001}|0)$	$(3^{-001}|0)$	$(m_{010}|0)$	$(m_{100}|0)$
$(m_{110}|0)$	$(2_{1-10}|0)'$	$(2_{120}|0)'$	$(2_{210}|0)'$	$(\bar{6}^{+001}|0)'$
$(m_{001}|0)'$	$(\bar{6}^{-001}|0)'$			

]

]

Group 19.2.1.199 (Nonmagnetic spacetime group):

{(1 | n)}

[	(1|0)	(3 ⁺ 001|0)	(3 ⁻ 001|0)	(m010|½)	(m100|½)
	(m110|½)				
]					

Group 19.2.2.200 (Class 2

Group): {(1 | n)}

[	(1|0)	(3 ⁺ 001|0)	(3 ⁻ 001|0)	(m010|½)	(m100|½)
	(m110|½)	(1|0)'	(3 ⁺ 001|0)'	(3 ⁻ 001|0)'	(m010|½)'
	(m100|½)'	(m110|½)'			
]					

Group 19.2.3.201 (Class 3

Group): {(1 | n)}

[	(1|0)	(3 ⁺ 001|0)	(3 ⁻ 001|0)	(m010|½)	(m100|½)
	(m110|½)	(2010|0)'	(2100|0)'	(2110|0)'	(I|½)'
	(3 ⁺ 001|½)'	(3 ⁻ 001|½)'			
]					

Group 19.2.4.202 (Class 3

Group): {(1 | n)}

[	(1|0)	(3 ⁺ 001|0)	(3 ⁻ 001|0)	(m010|½)	(m100|½)
	(m110|½)	(6 ⁺ 001|0)'	(2001|0)'	(6 ⁻ 001|0)'	(m1-10|½)'
	(m120|½)'	(m210|½)'			
]					

Group 19.2.5.203 (Class 3

Group): {(1 | n)}

[	(1|0)	(3 ⁺ 001|0)	(3 ⁻ 001|0)	(m010|½)	(m100|½)
	(m110|½)	(21-10|0)'	(2120|0)'	(2210|0)'	(6 ⁺ 001|½)'
	(m001|½)'	(6 ⁻ 001|½)'			
]					

%%
 %%%

%%
 %%%

POINT GROUP 20 (-3m)

%%
 %%%

Group 20.1.1.204 (Nonmagnetic spacetime group):

{(1 | n)}

[	(1|0)	(3 ⁺ 001|0)	(3 ⁻ 001|0)	(21-10|0)	(2120|0)
]					

$(2_{210}|0)$	$(\bar{1}|0)$	$(\bar{3}^{+001}|0)$	$(\bar{3}^{-001}|0)$	$(m_{1-10}|0)$
$(m_{120}|0)$	$(m_{210}|0)$			

]

Group 20.1.2.205 (Class 2
Group): $\{(1 | n)\}$

$(1|0)$	$(3^{+001}|0)$	$(3^{-001}|0)$	$(2_{1-10}|0)$	$(2_{120}|0)$
$(2_{210}|0)$	$(\bar{1}|0)$	$(\bar{3}^{+001}|0)$	$(\bar{3}^{-001}|0)$	$(m_{1-10}|0)$
$(m_{120}|0)$	$(m_{210}|0)$	$(1|0)'$	$(3^{+001}|0)'$	$(3^{-001}|0)'$
$(2_{1-10}|0)'$	$(2_{120}|0)'$	$(2_{210}|0)'$	$(\bar{1}|0)'$	$(\bar{3}^{+001}|0)'$
$(\bar{3}^{-001}|0)'$	$(m_{1-10}|0)'$	$(m_{120}|0)'$	$(m_{210}|0)'$	

]

Group 20.1.3.206 (Class 3
Group): $\{(1 | n)\}$

$(1|0)$	$(3^{+001}|0)$	$(3^{-001}|0)$	$(2_{1-10}|0)$	$(2_{120}|0)$
$(2_{210}|0)$	$(\bar{1}|0)$	$(\bar{3}^{+001}|0)$	$(\bar{3}^{-001}|0)$	$(m_{1-10}|0)$
$(m_{120}|0)$	$(m_{210}|0)$	$(6^{+001}|0)'$	$(2_{001}|0)'$	$(6^{-001}|0)'$
$(2_{010}|0)'$	$(2_{100}|0)'$	$(2_{110}|0)'$	$(\bar{6}^{+001}|0)'$	$(m_{001}|0)'$
$(\bar{6}^{-001}|0)'$	$(m_{010}|0)'$	$(m_{100}|0)'$	$(m_{110}|0)'$	

]

Group 20.2.1.207 (Nonmagnetic spacetime group):
 $\{(1 | n)\}$

$(1|0)$	$(3^{+001}|0)$	$(3^{-001}|0)$	$(2_{1-10}|\frac{1}{2})$	$(2_{120}|\frac{1}{2})$
$(2_{210}|\frac{1}{2})$	$(\bar{1}|0)$	$(\bar{3}^{+001}|0)$	$(\bar{3}^{-001}|0)$	$(m_{1-10}|\frac{1}{2})$
$(m_{120}|\frac{1}{2})$	$(m_{210}|\frac{1}{2})$			

]

Group 20.2.2.208 (Class 2
Group): $\{(1 | n)\}$

$(1|0)$	$(3^{+001}|0)$	$(3^{-001}|0)$	$(2_{1-10}|\frac{1}{2})$	$(2_{120}|\frac{1}{2})$
$(2_{210}|\frac{1}{2})$	$(\bar{1}|0)$	$(\bar{3}^{+001}|0)$	$(\bar{3}^{-001}|0)$	$(m_{1-10}|\frac{1}{2})$
$(m_{120}|\frac{1}{2})$	$(m_{210}|\frac{1}{2})$	$(1|0)'$	$(3^{+001}|0)'$	$(3^{-001}|0)'$
$(2_{1-10}|\frac{1}{2})'$	$(2_{120}|\frac{1}{2})'$	$(2_{210}|\frac{1}{2})'$	$(\bar{1}|0)'$	$(\bar{3}^{+001}|0)'$
$(\bar{3}^{-001}|0)'$	$(m_{1-10}|\frac{1}{2})'$	$(m_{120}|\frac{1}{2})'$	$(m_{210}|\frac{1}{2})'$	

]

Group 20.2.3.209 (Class 3
Group): $\{(1 | n)\}$

$(1|0)$	$(3^{+001}|0)$	$(3^{-001}|0)$	$(2_{1-10}|\frac{1}{2})$	$(2_{120}|\frac{1}{2})$
$(2_{210}|\frac{1}{2})$	$(\bar{1}|0)$	$(\bar{3}^{+001}|0)$	$(\bar{3}^{-001}|0)$	$(m_{1-10}|\frac{1}{2})$
$(m_{120}|\frac{1}{2})$	$(m_{210}|\frac{1}{2})$	$(6^{+001}|0)'$	$(2_{001}|0)'$	$(6^{-001}|0)'$
$(2_{010}|\frac{1}{2})'$	$(2_{100}|\frac{1}{2})'$	$(2_{110}|\frac{1}{2})'$	$(\bar{6}^{+001}|0)'$	$(m_{001}|0)'$
$(\bar{6}^{-001}|0)'$	$(m_{010}|\frac{1}{2})'$	$(m_{100}|\frac{1}{2})'$	$(m_{110}|\frac{1}{2})'$	

]

Group 20.3.1.210 (Nonmagnetic spacetime group):
 $\{(1 | n)\}$

$(1|0)$	$(3^{+001}|0)$	$(3^{-001}|0)$	$(2_{1-10}|0)$	$(2_{120}|0)$
$(2_{210}|0)$	$(\bar{1}|\frac{1}{2})$	$(\bar{3}^{+001}|\frac{1}{2})$	$(\bar{3}^{-001}|\frac{1}{2})$	$(m_{1-10}|\frac{1}{2})$
$(m_{120}|\frac{1}{2})$	$(m_{210}|\frac{1}{2})$			

]

Group 20.3.2.211 (Class 2 Group):

Group 21.1.1.216 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
(1|0) (6⁺⁰⁰¹|0) (3⁺⁰⁰¹|0) (2₀₀₁|0) (3⁻⁰⁰¹|0)
(6⁻⁰⁰¹|0)
]

Group 21.1.2.217 (Class 2

Group): $\{(1 | n)\}$

[
(1|0) (6⁺⁰⁰¹|0) (3⁺⁰⁰¹|0) (2₀₀₁|0) (3⁻⁰⁰¹|0)
(6⁻⁰⁰¹|0) (1|0)' (6⁺⁰⁰¹|0)' (3⁺⁰⁰¹|0)' (2₀₀₁|0)'
(3⁻⁰⁰¹|0)' (6⁻⁰⁰¹|0)'
]

Group 21.1.3.218 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) (6⁺⁰⁰¹|0) (3⁺⁰⁰¹|0) (2₀₀₁|0) (3⁻⁰⁰¹|0)
(6⁻⁰⁰¹|0) ($\bar{1}$ |0)' ($\bar{6}^{+001}$ |0)' ($\bar{3}^{+001}$ |0)' (m₀₀₁|0)'
($\bar{3}^{-001}$ |0)' ($\bar{6}^{-001}$ |0)'
]

Group 21.1.4.219 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) (6⁺⁰⁰¹|0) (3⁺⁰⁰¹|0) (2₀₀₁|0) (3⁻⁰⁰¹|0)
(6⁻⁰⁰¹|0) (2₀₁₀|0)' (2₁₀₀|0)' (2₁₁₀|0)' (2₁₋₁₀|0)'
(2₁₂₀|0)' (2₂₁₀|0)'
]

Group 21.1.5.220 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) (6⁺⁰⁰¹|0) (3⁺⁰⁰¹|0) (2₀₀₁|0) (3⁻⁰⁰¹|0)
(6⁻⁰⁰¹|0) (m₀₁₀|0)' (m₁₀₀|0)' (m₁₁₀|0)' (m₁₋₁₀|0)'
(m₁₂₀|0)' (m₂₁₀|0)'
]

Group 21.2.1.221 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
(1|0) (6⁺⁰⁰¹| $\frac{1}{2}$) (3⁺⁰⁰¹|0) (2₀₀₁| $\frac{1}{2}$) (3⁻⁰⁰¹|0)
(6⁻⁰⁰¹| $\frac{1}{2}$)
]

Group 21.2.2.222 (Class 2

Group): $\{(1 | n)\}$

[
(1|0) (6⁺⁰⁰¹| $\frac{1}{2}$) (3⁺⁰⁰¹|0) (2₀₀₁| $\frac{1}{2}$) (3⁻⁰⁰¹|0)
(6⁻⁰⁰¹| $\frac{1}{2}$) (1|0)' (6⁺⁰⁰¹| $\frac{1}{2}$)' (3⁺⁰⁰¹|0)' (2₀₀₁| $\frac{1}{2}$)'
(3⁻⁰⁰¹|0)' (6⁻⁰⁰¹| $\frac{1}{2}$)'
]

Group 21.2.3.223 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) (6⁺⁰⁰¹| $\frac{1}{2}$) (3⁺⁰⁰¹|0) (2₀₀₁| $\frac{1}{2}$) (3⁻⁰⁰¹|0)
(6⁻⁰⁰¹| $\frac{1}{2}$) ($\bar{1}$ |0)' ($\bar{6}^{+001}$ | $\frac{1}{2}$)' ($\bar{3}^{+001}$ |0)' (m₀₀₁| $\frac{1}{2}$)'
($\bar{3}^{-001}$ |0)' ($\bar{6}^{-001}$ | $\frac{1}{2}$)'
]

Group 21.2.4.224 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) (6⁺001|½) (3⁺001|0) (2001|½) (3⁻001|0)
(6⁻001|½) (2010|0)' (2100|0)' (2110|0)' (21-10|½)'
(2120|½)' (2210|½)'
]

Group 21.2.5.225 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) (6⁺001|½) (3⁺001|0) (2001|½) (3⁻001|0)
(6⁻001|½) (m010|0)' (m100|0)' (m110|0)' (m1-10|½)'
(m120|½)' (m210|½)'
]

Group 21.3.1.226 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
(1|0) (6⁺001|⅔) (3⁺001|⅓) (2001|0) (3⁻001|⅔)
(6⁻001|⅓)
]

Group 21.3.2.227 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) (6⁺001|⅔) (3⁺001|⅓) (2001|0) (3⁻001|⅔)
(6⁻001|⅓) (2010|0)' (2100|⅓)' (2110|⅔)' (21-10|⅔)'
(2120|⅓)' (2210|0)'
]

Group 21.3.3.228 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) (6⁺001|⅔) (3⁺001|⅓) (2001|0) (3⁻001|⅔)
(6⁻001|⅓) (m010|0)' (m100|⅓)' (m110|⅔)' (m1-10|⅔)'
(m120|⅓)' (m210|0)'
]

Group 21.4.1.229 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
(1|0) (6⁺001|⅙) (3⁺001|⅓) (2001|½) (3⁻001|⅔)
(6⁻001|⅕)
]

Group 21.4.2.230 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) (6⁺001|⅙) (3⁺001|⅓) (2001|½) (3⁻001|⅔)
(6⁻001|⅕) (2010|0)' (2100|⅓)' (2110|⅔)' (21-10|⅙)'
(2120|⅕)' (2210|½)'
]

Group 21.4.3.231 (Class 3

Group): $\{(1 | n)\}$

[
(1|0) (6⁺001|⅙) (3⁺001|⅓) (2001|½) (3⁻001|⅔)
(6⁻001|⅕) (m010|0)' (m100|⅓)' (m110|⅔)' (m1-10|⅙)'
]

$(m_{120} | \frac{5}{6})'$ $(m_{210} | \frac{1}{2})'$
]

%%
%%

%%
%%

POINT GROUP 22 (-6)

%%
%%

Group 22.1.1.232 (Nonmagnetic spacetime group):

{(1 | n)}
[
(1|0) (3⁺⁰⁰¹|0) (3⁻⁰⁰¹|0) ($\bar{6}^{+001}$ |0) (m₀₀₁|0)
($\bar{6}^{-001}$ |0)
]

Group 22.1.2.233 (Class 2
Group): {(1 | n)}

[
(1|0) (3⁺⁰⁰¹|0) (3⁻⁰⁰¹|0) ($\bar{6}^{+001}$ |0) (m₀₀₁|0)
($\bar{6}^{-001}$ |0) (1|0)' (3⁺⁰⁰¹|0)' (3⁻⁰⁰¹|0)' ($\bar{6}^{+001}$ |0)'
(m₀₀₁|0)' ($\bar{6}^{-001}$ |0)'
]

Group 22.1.3.234 (Class 3
Group): {(1 | n)}

[
(1|0) (3⁺⁰⁰¹|0) (3⁻⁰⁰¹|0) ($\bar{6}^{+001}$ |0) (m₀₀₁|0)
($\bar{6}^{-001}$ |0) (6⁺⁰⁰¹|0)' (2₀₀₁|0)' (6⁻⁰⁰¹|0)' ($\bar{1}$ |0)'
($\bar{3}^{+001}$ |0)' ($\bar{3}^{-001}$ |0)'
]

Group 22.1.4.235 (Class 3
Group): {(1 | n)}

[
(1|0) (3⁺⁰⁰¹|0) (3⁻⁰⁰¹|0) ($\bar{6}^{+001}$ |0) (m₀₀₁|0)
($\bar{6}^{-001}$ |0) (2₁₋₁₀|0)' (2₁₂₀|0)' (2₂₁₀|0)' (m₀₁₀|0)'
(m₁₀₀|0)' (m₁₁₀|0)'
]

Group 22.2.1.236 (Nonmagnetic spacetime group):

{(1 | n)}
[
(1|0) (3⁺⁰⁰¹|0) (3⁻⁰⁰¹|0) ($\bar{6}^{+001}$ | $\frac{1}{2}$) (m₀₀₁| $\frac{1}{2}$)
($\bar{6}^{-001}$ | $\frac{1}{2}$)
]

Group 22.2.2.237 (Class 2
Group): {(1 | n)}

[
(1|0) (3⁺⁰⁰¹|0) (3⁻⁰⁰¹|0) ($\bar{6}^{+001}$ | $\frac{1}{2}$) (m₀₀₁| $\frac{1}{2}$)
]

POINT GROUP 23 (6/m)

%%
 %%%

Group 23.1.1.244 (Nonmagnetic spacetime group):

{(1 | n)}
 [
 (1|0) (6⁺001|0) (3⁺001|0) (2001|0) (3⁻001|0)
 (6⁻001|0) (1̄|0) (6⁻001|0) (3⁺001|0) (m001|0)
 (3⁻001|0) (6⁻001|0)
]

Group 23.1.2.245 (Class 2
 Group): {(1 | n)}

[
 (1|0) (6⁺001|0) (3⁺001|0) (2001|0) (3⁻001|0)
 (6⁻001|0) (1̄|0) (6⁻001|0) (3⁺001|0) (m001|0)
 (3⁻001|0) (6⁻001|0) (1|0)' (6⁺001|0)' (3⁺001|0)'
 (2001|0)' (3⁻001|0)' (6⁻001|0)' (1̄|0)' (6⁺001|0)'
 (3⁺001|0)' (m001|0)' (3⁻001|0)' (6⁻001|0)'
]

Group 23.1.3.246 (Class 3
 Group): {(1 | n)}

[
 (1|0) (6⁺001|0) (3⁺001|0) (2001|0) (3⁻001|0)
 (6⁻001|0) (1̄|0) (6⁻001|0) (3⁺001|0) (m001|0)
 (3⁻001|0) (6⁻001|0) (2010|0)' (2100|0)' (2110|0)'
 (21-10|0)' (2120|0)' (2210|0)' (m010|0)' (m100|0)'
 (m110|0)' (m1-10|0)' (m120|0)' (m210|0)'
]

Group 23.2.1.247 (Nonmagnetic spacetime group):

{(1 | n)}
 [
 (1|0) (6⁺001|½) (3⁺001|0) (2001|½) (3⁻001|0)
 (6⁻001|½) (1̄|0) (6⁻001|½) (3⁺001|0) (m001|½)
 (3⁻001|0) (6⁻001|½)
]

Group 23.2.2.248 (Class 2
 Group): {(1 | n)}

[
 (1|0) (6⁺001|½) (3⁺001|0) (2001|½) (3⁻001|0)
 (6⁻001|½) (1̄|0) (6⁻001|½) (3⁺001|0) (m001|½)
 (3⁻001|0) (6⁻001|½) (1|0)' (6⁺001|½)' (3⁺001|0)'
 (2001|½)' (3⁻001|0)' (6⁻001|½)' (1̄|0)' (6⁺001|½)'
 (3⁺001|0)' (m001|½)' (3⁻001|0)' (6⁻001|½)'
]

Group 23.2.3.249 (Class 3
 Group): {(1 | n)}

[
 (1|0) (6⁺001|½) (3⁺001|0) (2001|½) (3⁻001|0)
 (6⁻001|½) (1̄|0) (6⁻001|½) (3⁺001|0) (m001|½)
 (3⁻001|0) (6⁻001|½) (2010|0)' (2100|0)' (2110|0)'
 (21-10|½)' (2120|½)' (2210|½)' (m010|0)' (m100|0)'
 (m110|0)' (m1-10|½)' (m120|½)' (m210|½)'
]

 Group 23.3.1.250 (Nonmagnetic spacetime group):

{(1 | n)}

[
 (1|0) (6⁺001| $\frac{2}{3}$) (3⁺001| $\frac{1}{3}$) (2001|0) (3⁻001| $\frac{2}{3}$)
 (6⁻001| $\frac{1}{3}$) ($\bar{1}$ |0) ($\bar{6}$ ⁺001| $\frac{2}{3}$) ($\bar{3}$ ⁺001| $\frac{1}{3}$) (m001|0)
 ($\bar{3}$ ⁻001| $\frac{2}{3}$) ($\bar{6}$ ⁻001| $\frac{1}{3}$)
]

Group 23.3.2.251 (Class 3

Group): {(1 | n)}

[
 (1|0) (6⁺001| $\frac{2}{3}$) (3⁺001| $\frac{1}{3}$) (2001|0) (3⁻001| $\frac{2}{3}$)
 (6⁻001| $\frac{1}{3}$) ($\bar{1}$ |0) ($\bar{6}$ ⁺001| $\frac{2}{3}$) ($\bar{3}$ ⁺001| $\frac{1}{3}$) (m001|0)
 ($\bar{3}$ ⁻001| $\frac{2}{3}$) ($\bar{6}$ ⁻001| $\frac{1}{3}$) (2010|0)' (2100| $\frac{1}{3}$)' (2110| $\frac{2}{3}$)'
 (2₁₋₁₀| $\frac{2}{3}$)' (2120| $\frac{1}{3}$)' (2210|0)' (m010|0)' (m100| $\frac{1}{3}$)'
 (m₁₁₀| $\frac{2}{3}$)' (m₁₋₁₀| $\frac{2}{3}$)' (m₁₂₀| $\frac{1}{3}$)' (m₂₁₀|0)'
]

 Group 23.4.1.252 (Nonmagnetic spacetime group):

{(1 | n)}

[
 (1|0) (6⁺001| $\frac{1}{6}$) (3⁺001| $\frac{1}{3}$) (2001| $\frac{1}{2}$) (3⁻001| $\frac{2}{3}$)
 (6⁻001| $\frac{5}{6}$) ($\bar{1}$ |0) ($\bar{6}$ ⁺001| $\frac{1}{6}$) ($\bar{3}$ ⁺001| $\frac{1}{3}$) (m001| $\frac{1}{2}$)
 ($\bar{3}$ ⁻001| $\frac{2}{3}$) ($\bar{6}$ ⁻001| $\frac{5}{6}$)
]

Group 23.4.2.253 (Class 3

Group): {(1 | n)}

[
 (1|0) (6⁺001| $\frac{1}{6}$) (3⁺001| $\frac{1}{3}$) (2001| $\frac{1}{2}$) (3⁻001| $\frac{2}{3}$)
 (6⁻001| $\frac{5}{6}$) ($\bar{1}$ |0) ($\bar{6}$ ⁺001| $\frac{1}{6}$) ($\bar{3}$ ⁺001| $\frac{1}{3}$) (m001| $\frac{1}{2}$)
 ($\bar{3}$ ⁻001| $\frac{2}{3}$) ($\bar{6}$ ⁻001| $\frac{5}{6}$) (2010|0)' (2100| $\frac{1}{3}$)' (2110| $\frac{2}{3}$)'
 (2₁₋₁₀| $\frac{1}{6}$)' (2120| $\frac{5}{6}$)' (2210| $\frac{1}{2}$)' (m010|0)' (m100| $\frac{1}{3}$)'
 (m₁₁₀| $\frac{2}{3}$)' (m₁₋₁₀| $\frac{1}{6}$)' (m₁₂₀| $\frac{5}{6}$)' (m₂₁₀| $\frac{1}{2}$)'
]

 Group 23.5.1.254 (Nonmagnetic spacetime group):

{(1 | n)}

[
 (1|0) (6⁺001|0) (3⁺001|0) (2001|0) (3⁻001|0)
 (6⁻001|0) ($\bar{1}$ | $\frac{1}{2}$) ($\bar{6}$ ⁺001| $\frac{1}{2}$) ($\bar{3}$ ⁺001| $\frac{1}{2}$) (m001| $\frac{1}{2}$)
 ($\bar{3}$ ⁻001| $\frac{1}{2}$) ($\bar{6}$ ⁻001| $\frac{1}{2}$)
]

Group 23.5.2.255 (Class 2

Group): {(1 | n)}

[
 (1|0) (6⁺001|0) (3⁺001|0) (2001|0) (3⁻001|0)
 (6⁻001|0) ($\bar{1}$ | $\frac{1}{2}$) ($\bar{6}$ ⁺001| $\frac{1}{2}$) ($\bar{3}$ ⁺001| $\frac{1}{2}$) (m001| $\frac{1}{2}$)
 ($\bar{3}$ ⁻001| $\frac{1}{2}$) ($\bar{6}$ ⁻001| $\frac{1}{2}$) (1|0)' (6⁺001|0)' (3⁺001|0)'
 (2001|0)' (3⁻001|0)' (6⁻001|0)' ($\bar{1}$ | $\frac{1}{2}$)' ($\bar{6}$ ⁺001| $\frac{1}{2}$)'
 ($\bar{3}$ ⁺001| $\frac{1}{2}$)' (m001| $\frac{1}{2}$)' ($\bar{3}$ ⁻001| $\frac{1}{2}$)' ($\bar{6}$ ⁻001| $\frac{1}{2}$)'
]

Group 23.5.3.256 (Class 3

Group): {(1 | n)}

[

$(1|0)$	$(\bar{6}^{+001}|0)$	$(\bar{3}^{+001}|0)$	$(2_{001}|0)$	$(3^{-001}|0)$
$(\bar{6}^{-001}|0)$	$(\bar{1}|\frac{1}{2})$	$(\bar{6}^{+001}|\frac{1}{2})$	$(\bar{3}^{+001}|\frac{1}{2})$	$(m_{001}|\frac{1}{2})$
$(\bar{3}^{-001}|\frac{1}{2})$	$(\bar{6}^{-001}|\frac{1}{2})$	$(2_{010}|0)'$	$(2_{100}|0)'$	$(2_{110}|0)'$
$(2_{1-10}|0)'$	$(2_{120}|0)'$	$(2_{210}|0)'$	$(m_{010}|\frac{1}{2})'$	$(m_{100}|\frac{1}{2})'$
$(m_{110}|\frac{1}{2})'$	$(m_{1-10}|\frac{1}{2})'$	$(m_{120}|\frac{1}{2})'$	$(m_{210}|\frac{1}{2})'$	

Group 23.6.1.257 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

$(1|0)$	$(\bar{6}^{+001}|\frac{1}{2})$	$(\bar{3}^{+001}|0)$	$(2_{001}|\frac{1}{2})$	$(3^{-001}|0)$
$(\bar{6}^{-001}|\frac{1}{2})$	$(\bar{1}|\frac{1}{2})$	$(\bar{6}^{+001}|0)$	$(\bar{3}^{+001}|\frac{1}{2})$	$(m_{001}|0)$
$(\bar{3}^{-001}|\frac{1}{2})$	$(\bar{6}^{-001}|0)$			

Group 23.6.2.258 (Class 2

Group): $\{(1 | n)\}$

$(1|0)$	$(\bar{6}^{+001}|\frac{1}{2})$	$(\bar{3}^{+001}|0)$	$(2_{001}|\frac{1}{2})$	$(3^{-001}|0)$
$(\bar{6}^{-001}|\frac{1}{2})$	$(\bar{1}|\frac{1}{2})$	$(\bar{6}^{+001}|0)$	$(\bar{3}^{+001}|\frac{1}{2})$	$(m_{001}|0)$
$(\bar{3}^{-001}|\frac{1}{2})$	$(\bar{6}^{-001}|0)$	$(1|0)'$	$(\bar{6}^{+001}|\frac{1}{2})'$	$(\bar{3}^{+001}|0)'$
$(2_{001}|\frac{1}{2})'$	$(3^{-001}|0)'$	$(\bar{6}^{-001}|\frac{1}{2})'$	$(\bar{1}|\frac{1}{2})'$	$(\bar{6}^{+001}|0)'$
$(\bar{3}^{+001}|\frac{1}{2})'$	$(m_{001}|0)'$	$(\bar{3}^{-001}|\frac{1}{2})'$	$(\bar{6}^{-001}|0)'$	

Group 23.6.3.259 (Class 3

Group): $\{(1 | n)\}$

$(1|0)$	$(\bar{6}^{+001}|\frac{1}{2})$	$(\bar{3}^{+001}|0)$	$(2_{001}|\frac{1}{2})$	$(3^{-001}|0)$
$(\bar{6}^{-001}|\frac{1}{2})$	$(\bar{1}|\frac{1}{2})$	$(\bar{6}^{+001}|0)$	$(\bar{3}^{+001}|\frac{1}{2})$	$(m_{001}|0)$
$(\bar{3}^{-001}|\frac{1}{2})$	$(\bar{6}^{-001}|0)$	$(2_{010}|0)'$	$(2_{100}|0)'$	$(2_{110}|0)'$
$(2_{1-10}|\frac{1}{2})'$	$(2_{120}|\frac{1}{2})'$	$(2_{210}|\frac{1}{2})'$	$(m_{010}|\frac{1}{2})'$	$(m_{100}|\frac{1}{2})'$
$(m_{110}|\frac{1}{2})'$	$(m_{1-10}|0)'$	$(m_{120}|0)'$	$(m_{210}|0)'$	

Group 23.7.1.260 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

$(1|0)$	$(\bar{6}^{+001}|\frac{2}{3})$	$(\bar{3}^{+001}|\frac{1}{3})$	$(2_{001}|0)$	$(3^{-001}|\frac{2}{3})$
$(\bar{6}^{-001}|\frac{1}{3})$	$(\bar{1}|\frac{1}{2})$	$(\bar{6}^{+001}|\frac{1}{6})$	$(\bar{3}^{+001}|\frac{5}{6})$	$(m_{001}|\frac{1}{2})$
$(\bar{3}^{-001}|\frac{1}{6})$	$(\bar{6}^{-001}|\frac{5}{6})$			

Group 23.7.2.261 (Class 3

Group): $\{(1 | n)\}$

$(1|0)$	$(\bar{6}^{+001}|\frac{2}{3})$	$(\bar{3}^{+001}|\frac{1}{3})$	$(2_{001}|0)$	$(3^{-001}|\frac{2}{3})$
$(\bar{6}^{-001}|\frac{1}{3})$	$(\bar{1}|\frac{1}{2})$	$(\bar{6}^{+001}|\frac{1}{6})$	$(\bar{3}^{+001}|\frac{5}{6})$	$(m_{001}|\frac{1}{2})$
$(\bar{3}^{-001}|\frac{1}{6})$	$(\bar{6}^{-001}|\frac{5}{6})$	$(2_{010}|0)'$	$(2_{100}|\frac{1}{3})'$	$(2_{110}|\frac{2}{3})'$
$(2_{1-10}|\frac{2}{3})'$	$(2_{120}|\frac{1}{3})'$	$(2_{210}|0)'$	$(m_{010}|\frac{1}{2})'$	$(m_{100}|\frac{5}{6})'$
$(m_{110}|\frac{1}{6})'$	$(m_{1-10}|\frac{1}{6})'$	$(m_{120}|\frac{5}{6})'$	$(m_{210}|\frac{1}{2})'$	

Group 23.8.1.262 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

$(1|0)$	$(\bar{6}^{+001}|\frac{1}{6})$	$(\bar{3}^{+001}|\frac{1}{3})$	$(2_{001}|\frac{1}{2})$	$(3^{-001}|\frac{2}{3})$
$(\bar{6}^{-001}|\frac{5}{6})$	$(\bar{1}|\frac{1}{2})$	$(\bar{6}^{+001}|\frac{2}{3})$	$(\bar{3}^{+001}|\frac{5}{6})$	$(m_{001}|0)$

$(\bar{3}^{-001} | \frac{1}{6})$ $(\bar{6}^{-001} | \frac{1}{3})$
]

Group 23.8.2.263 (Class 3
Group): $\{(1 | n)\}$

[
 $(1 | 0)$ $(6^{+001} | \frac{1}{6})$ $(3^{+001} | \frac{1}{3})$ $(2_{001} | \frac{1}{2})$ $(3^{-001} | \frac{2}{3})$
 $(6^{-001} | \frac{5}{6})$ $(\bar{1} | \frac{1}{2})$ $(\bar{6}^{+001} | \frac{2}{3})$ $(\bar{3}^{+001} | \frac{5}{6})$ $(m_{001} | 0)$
 $(\bar{3}^{-001} | \frac{1}{6})$ $(\bar{6}^{-001} | \frac{1}{3})$ $(2_{010} | 0)'$ $(2_{100} | \frac{1}{3})'$ $(2_{110} | \frac{2}{3})'$
 $(2_{1-10} | \frac{1}{6})'$ $(2_{120} | \frac{5}{6})'$ $(2_{210} | \frac{1}{2})'$ $(m_{010} | \frac{1}{2})'$ $(m_{100} | \frac{5}{6})'$
 $(m_{110} | \frac{1}{6})'$ $(m_{1-10} | \frac{2}{3})'$ $(m_{120} | \frac{1}{3})'$ $(m_{210} | 0)'$
]

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%%
%%

POINT GROUP 24 (622)

%%
%%

Group 24.1.1.264 (Nonmagnetic spacetime group):
 $\{(1 | n)\}$

[
 $(1 | 0)$ $(6^{+001} | 0)$ $(3^{+001} | 0)$ $(2_{001} | 0)$ $(3^{-001} | 0)$
 $(6^{-001} | 0)$ $(2_{010} | 0)$ $(2_{100} | 0)$ $(2_{110} | 0)$ $(2_{1-10} | 0)$
 $(2_{120} | 0)$ $(2_{210} | 0)$
]

Group 24.1.2.265 (Class 2
Group): $\{(1 | n)\}$

[
 $(1 | 0)$ $(6^{+001} | 0)$ $(3^{+001} | 0)$ $(2_{001} | 0)$ $(3^{-001} | 0)$
 $(6^{-001} | 0)$ $(2_{010} | 0)$ $(2_{100} | 0)$ $(2_{110} | 0)$ $(2_{1-10} | 0)$
 $(2_{120} | 0)$ $(2_{210} | 0)$ $(1 | 0)'$ $(6^{+001} | 0)'$ $(3^{+001} | 0)'$
 $(2_{001} | 0)'$ $(3^{-001} | 0)'$ $(6^{-001} | 0)'$ $(2_{010} | 0)'$ $(2_{100} | 0)'$
 $(2_{110} | 0)'$ $(2_{1-10} | 0)'$ $(2_{120} | 0)'$ $(2_{210} | 0)'$
]

Group 24.1.3.266 (Class 3
Group): $\{(1 | n)\}$

[
 $(1 | 0)$ $(6^{+001} | 0)$ $(3^{+001} | 0)$ $(2_{001} | 0)$ $(3^{-001} | 0)$
 $(6^{-001} | 0)$ $(2_{010} | 0)$ $(2_{100} | 0)$ $(2_{110} | 0)$ $(2_{1-10} | 0)$
 $(2_{120} | 0)$ $(2_{210} | 0)$ $(\bar{1} | 0)'$ $(\bar{6}^{+001} | 0)'$ $(\bar{3}^{+001} | 0)'$
 $(m_{001} | 0)'$ $(\bar{3}^{-001} | 0)'$ $(\bar{6}^{-001} | 0)'$ $(m_{010} | 0)'$ $(m_{100} | 0)'$
 $(m_{110} | 0)'$ $(m_{1-10} | 0)'$ $(m_{120} | 0)'$ $(m_{210} | 0)'$
]

Group 24.2.1.267 (Nonmagnetic spacetime group):
 $\{(1 | n)\}$

[
 $(1 | 0)$ $(6^{+001} | 0)$ $(3^{+001} | 0)$ $(2_{001} | 0)$ $(3^{-001} | 0)$

POINT GROUP 25 (6mm)

%%
 %%%

 Group 25.1.1.273 (Nonmagnetic spacetime group):

{(1 | n)}

[	(1|0)	(6 ⁺ 001|0)	(3 ⁺ 001|0)	(2001|0)	(3 ⁻ 001|0)
	(6 ⁻ 001|0)	(m010|0)	(m100|0)	(m110|0)	(m1-10|0)
	(m120|0)	(m210|0)			
]					

Group 25.1.2.274 (Class 2

Group): {(1 | n)}

[	(1|0)	(6 ⁺ 001|0)	(3 ⁺ 001|0)	(2001|0)	(3 ⁻ 001|0)
	(6 ⁻ 001|0)	(m010|0)	(m100|0)	(m110|0)	(m1-10|0)
	(m120|0)	(m210|0)	(1|0)'	(6 ⁺ 001|0)'	(3 ⁺ 001|0)'
	(2001|0)'	(3 ⁻ 001|0)'	(6 ⁻ 001|0)'	(m010|0)'	(m100|0)'
	(m110|0)'	(m1-10|0)'	(m120|0)'	(m210|0)'	
]					

Group 25.1.3.275 (Class 3

Group): {(1 | n)}

[	(1|0)	(6 ⁺ 001|0)	(3 ⁺ 001|0)	(2001|0)	(3 ⁻ 001|0)
	(6 ⁻ 001|0)	(m010|0)	(m100|0)	(m110|0)	(m1-10|0)
	(m120|0)	(m210|0)	(2010|0)'	(2100|0)'	(2110|0)'
	(21-10|0)'	(2120|0)'	(2210|0)'	(1|0)'	(6 ⁺ 001|0)'
	(3 ⁺ 001|0)'	(m001|0)'	(3 ⁻ 001|0)'	(6 ⁻ 001|0)'	
]					

 Group 25.2.1.276 (Nonmagnetic spacetime group):

{(1 | n)}

[	(1|0)	(6 ⁺ 001|0)	(3 ⁺ 001|0)	(2001|0)	(3 ⁻ 001|0)
	(6 ⁻ 001|0)	(m010|½)	(m100|½)	(m110|½)	(m1-10|½)
	(m120|½)	(m210|½)			
]					

Group 25.2.2.277 (Class 2

Group): {(1 | n)}

[	(1|0)	(6 ⁺ 001|0)	(3 ⁺ 001|0)	(2001|0)	(3 ⁻ 001|0)
	(6 ⁻ 001|0)	(m010|½)	(m100|½)	(m110|½)	(m1-10|½)
	(m120|½)	(m210|½)	(1|0)'	(6 ⁺ 001|0)'	(3 ⁺ 001|0)'
	(2001|0)'	(3 ⁻ 001|0)'	(6 ⁻ 001|0)'	(m010|½)'	(m100|½)'
	(m110|½)'	(m1-10|½)'	(m120|½)'	(m210|½)'	
]					

Group 25.2.3.278 (Class 3

Group): {(1 | n)}

[	(1|0)	(6 ⁺ 001|0)	(3 ⁺ 001|0)	(2001|0)	(3 ⁻ 001|0)
	(6 ⁻ 001|0)	(m010|½)	(m100|½)	(m110|½)	(m1-10|½)
	(m120|½)	(m210|½)	(2010|0)'	(2100|0)'	(2110|0)'
	(21-10|0)'	(2120|0)'	(2210|0)'	(1|½)'	(6 ⁺ 001|½)'
	(3 ⁺ 001|½)'	(m001|½)'	(3 ⁻ 001|½)'	(6 ⁻ 001|½)'	
]					

Group 25.3.1.279 (Nonmagnetic spacetime group):

{(1 | n)}

[
(1|0) (6⁺001|½) (3⁺001|0) (2001|½) (3⁻001|0)
(6⁻001|½) (m010|½) (m100|½) (m110|½) (m1-10|0)
(m120|0) (m210|0)
]

Group 25.3.2.280 (Class 2

Group): {(1 | n)}

[
(1|0) (6⁺001|½) (3⁺001|0) (2001|½) (3⁻001|0)
(6⁻001|½) (m010|½) (m100|½) (m110|½) (m1-10|0)
(m120|0) (m210|0) (1|0)' (6⁺001|½)' (3⁺001|0)'
(2001|½)' (3⁻001|0)' (6⁻001|½)' (m010|½)' (m100|½)'
(m110|½)' (m1-10|0)' (m120|0)' (m210|0)'
]

Group 25.3.3.281 (Class 3

Group): {(1 | n)}

[
(1|0) (6⁺001|½) (3⁺001|0) (2001|½) (3⁻001|0)
(6⁻001|½) (m010|½) (m100|½) (m110|½) (m1-10|0)
(m120|0) (m210|0) (2010|0)' (2100|0)' (2110|0)'
(2₁₋₁₀|½)' (2120|½)' (2210|½)' (1|½)' (6⁺001|0)'
(3⁺001|½)' (m001|0)' (3⁻001|½)' (6⁻001|0)'
]

%%
%%

%%
%%

POINT GROUP 26 (-62m)

%%
%%

Group 26.1.1.282 (Nonmagnetic spacetime group):

{(1 | n)}

[
(1|0) (3⁺001|0) (3⁻001|0) (2₁₋₁₀|0) (2120|0)
(2210|0) (6⁺001|0) (m001|0) (6⁻001|0) (m010|0)
(m100|0) (m110|0)
]

Group 26.1.2.283 (Class 2

Group): {(1 | n)}

[
(1|0) (3⁺001|0) (3⁻001|0) (2₁₋₁₀|0) (2120|0)
(2210|0) (6⁺001|0) (m001|0) (6⁻001|0) (m010|0)
(m100|0) (m110|0) (1|0)' (3⁺001|0)' (3⁻001|0)'
(2₁₋₁₀|0)' (2120|0)' (2210|0)' (6⁺001|0)' (m001|0)'
(6⁻001|0)' (m010|0)' (m100|0)' (m110|0)'
]

Group 26.1.3.284 (Class 3)

Group): $\{(1 | n)\}$

```
[
(1|0)          (3+001|0)      (3-001|0)      (21-10|0)      (2120|0)
(2210|0)      (6+001|0)      (m001|0)      (6-001|0)      (m010|0)
(m100|0)      (m110|0)      (6+001|0)'    (2001|0)'      (6-001|0)'
(2010|0)'    (2100|0)'      (2110|0)'    (1|0)'          (3+001|0)'
(3-001|0)'    (m1-10|0)'    (m120|0)'    (m210|0)'
]
```

Group 26.2.1.285 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

```
[
(1|0)          (3+001|0)      (3-001|0)      (21-10|½)      (2120|½)
(2210|½)      (6+001|0)      (m001|0)      (6-001|0)      (m010|½)
(m100|½)      (m110|½)
]
```

Group 26.2.2.286 (Class 2)

Group): $\{(1 | n)\}$

```
[
(1|0)          (3+001|0)      (3-001|0)      (21-10|½)      (2120|½)
(2210|½)      (6+001|0)      (m001|0)      (6-001|0)      (m010|½)
(m100|½)      (m110|½)      (1|0)'          (3+001|0)'      (3-001|0)'
(21-10|½)'    (2120|½)'      (2210|½)'      (6+001|0)'      (m001|0)'
(6-001|0)'    (m010|½)'      (m100|½)'      (m110|½)'
]
```

Group 26.2.3.287 (Class 3)

Group): $\{(1 | n)\}$

```
[
(1|0)          (3+001|0)      (3-001|0)      (21-10|½)      (2120|½)
(2210|½)      (6+001|0)      (m001|0)      (6-001|0)      (m010|½)
(m100|½)      (m110|½)      (6+001|0)'    (2001|0)'      (6-001|0)'
(2010|½)'    (2100|½)'      (2110|½)'      (1|0)'          (3+001|0)'
(3-001|0)'    (m1-10|½)'    (m120|½)'      (m210|½)'
]
```

Group 26.3.1.288 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

```
[
(1|0)          (3+001|0)      (3-001|0)      (21-10|½)      (2120|½)
(2210|½)      (6+001|½)      (m001|½)      (6-001|½)      (m010|0)
(m100|0)      (m110|0)
]
```

Group 26.3.2.289 (Class 2)

Group): $\{(1 | n)\}$

```
[
(1|0)          (3+001|0)      (3-001|0)      (21-10|½)      (2120|½)
(2210|½)      (6+001|½)      (m001|½)      (6-001|½)      (m010|0)
(m100|0)      (m110|0)      (1|0)'          (3+001|0)'      (3-001|0)'
(21-10|½)'    (2120|½)'      (2210|½)'      (6+001|½)'      (m001|½)'
(6-001|½)'    (m010|0)'      (m100|0)'      (m110|0)'
]
```

Group 26.3.3.290 (Class 3)

Group): $\{(1 | n)\}$

```
[
(1|0)          (3+001|0)      (3-001|0)      (21-10|½)      (2120|½)
]
```

$(2_{210} | \frac{1}{2})$	$(\bar{6}^{+001} | \frac{1}{2})$	$(m_{001} | \frac{1}{2})$	$(\bar{6}^{-001} | \frac{1}{2})$	$(m_{010} | 0)$
$(m_{100} | 0)$	$(m_{110} | 0)$	$(6^{+001} | 0)'$	$(2_{001} | 0)'$	$(6^{-001} | 0)'$
$(2_{010} | \frac{1}{2})'$	$(2_{100} | \frac{1}{2})'$	$(2_{110} | \frac{1}{2})'$	$(\bar{1} | \frac{1}{2})'$	$(\bar{3}^{+001} | \frac{1}{2})'$
$(\bar{3}^{-001} | \frac{1}{2})'$	$(m_{1-10} | 0)'$	$(m_{120} | 0)'$	$(m_{210} | 0)'$	

Group 26.4.1.291 (Nonmagnetic spacetime group):

{(1 | n)}

[

$(1 | 0)$	$(3^{+001} | 0)$	$(3^{-001} | 0)$	$(2_{1-10} | 0)$	$(2_{120} | 0)$
$(2_{210} | 0)$	$(\bar{6}^{+001} | \frac{1}{2})$	$(m_{001} | \frac{1}{2})$	$(\bar{6}^{-001} | \frac{1}{2})$	$(m_{010} | \frac{1}{2})$
$(m_{100} | \frac{1}{2})$	$(m_{110} | \frac{1}{2})$			

]

Group 26.4.2.292 (Class 2

Group): {(1 | n)}

[

$(1 | 0)$	$(3^{+001} | 0)$	$(3^{-001} | 0)$	$(2_{1-10} | 0)$	$(2_{120} | 0)$
$(2_{210} | 0)$	$(\bar{6}^{+001} | \frac{1}{2})$	$(m_{001} | \frac{1}{2})$	$(\bar{6}^{-001} | \frac{1}{2})$	$(m_{010} | \frac{1}{2})$
$(m_{100} | \frac{1}{2})$	$(m_{110} | \frac{1}{2})$	$(1 | 0)'$	$(3^{+001} | 0)'$	$(3^{-001} | 0)'$
$(2_{1-10} | 0)'$	$(2_{120} | 0)'$	$(2_{210} | 0)'$	$(\bar{6}^{+001} | \frac{1}{2})'$	$(m_{001} | \frac{1}{2})'$
$(\bar{6}^{-001} | \frac{1}{2})'$	$(m_{010} | \frac{1}{2})'$	$(m_{100} | \frac{1}{2})'$	$(m_{110} | \frac{1}{2})'$	

]

Group 26.4.3.293 (Class 3

Group): {(1 | n)}

[

$(1 | 0)$	$(3^{+001} | 0)$	$(3^{-001} | 0)$	$(2_{1-10} | 0)$	$(2_{120} | 0)$
$(2_{210} | 0)$	$(\bar{6}^{+001} | \frac{1}{2})$	$(m_{001} | \frac{1}{2})$	$(\bar{6}^{-001} | \frac{1}{2})$	$(m_{010} | \frac{1}{2})$
$(m_{100} | \frac{1}{2})$	$(m_{110} | \frac{1}{2})$	$(6^{+001} | 0)'$	$(2_{001} | 0)'$	$(6^{-001} | 0)'$
$(2_{010} | 0)'$	$(2_{100} | 0)'$	$(2_{110} | 0)'$	$(\bar{1} | \frac{1}{2})'$	$(\bar{3}^{+001} | \frac{1}{2})'$
$(\bar{3}^{-001} | \frac{1}{2})'$	$(m_{1-10} | \frac{1}{2})'$	$(m_{120} | \frac{1}{2})'$	$(m_{210} | \frac{1}{2})'$	

]

%%

%%

%%

%%

POINT GROUP 27 (6/mmm)

%%

%%

Group 27.1.1.294 (Nonmagnetic spacetime group):

{(1 | n)}

[

$(1 | 0)$	$(6^{+001} | 0)$	$(3^{+001} | 0)$	$(2_{001} | 0)$	$(3^{-001} | 0)$
$(6^{-001} | 0)$	$(2_{010} | 0)$	$(2_{100} | 0)$	$(2_{110} | 0)$	$(2_{1-10} | 0)$
$(2_{120} | 0)$	$(2_{210} | 0)$	$(\bar{1} | 0)$	$(\bar{6}^{+001} | 0)$	$(\bar{3}^{+001} | 0)$
$(m_{001} | 0)$	$(\bar{3}^{-001} | 0)$	$(\bar{6}^{-001} | 0)$	$(m_{010} | 0)$	$(m_{100} | 0)$
$(m_{110} | 0)$	$(m_{1-10} | 0)$	$(m_{120} | 0)$	$(m_{210} | 0)$	

]

Group 27.1.2.295 (Class 2 Group):

{(1 | n)}

(1|0)	(6 ⁺ 001|0)	(3 ⁺ 001|0)	(2001|0)	(3 ⁻ 001|0)
(6 ⁻ 001|0)	(2010|0)	(2100|0)	(2110|0)	(21-10|0)
(2120|0)	(2210|0)	($\bar{1}$|0)	($\bar{6}^+$ 001|0)	($\bar{3}^+$ 001|0)
(m001|0)	($\bar{3}^-$ 001|0)	($\bar{6}^-$ 001|0)	(m010|0)	(m100|0)
(m110|0)	(m1-10|0)	(m120|0)	(m210|0)	(1|0)'
(6 ⁺ 001|0)'	(3 ⁺ 001|0)'	(2001|0)'	(3 ⁻ 001|0)'	(6 ⁻ 001|0)'
(2010|0)'	(2100|0)'	(2110|0)'	(21-10|0)'	(2120|0)'
(2210|0)'	($\bar{1}$|0)'	($\bar{6}^+$ 001|0)'	($\bar{3}^+$ 001|0)'	(m001|0)'
($\bar{3}^-$ 001|0)'	($\bar{6}^-$ 001|0)'	(m010|0)'	(m100|0)'	(m110|0)'
(m1-10|0)'	(m120|0)'	(m210|0)'		

Group 27.2.1.296 (Nonmagnetic spacetime group):

{(1 | n)}

(1|0)	(6 ⁺ 001|½)	(3 ⁺ 001|0)	(2001|0)	(3 ⁻ 001|0)
(6 ⁻ 001|0)	(2010|½)	(2100|½)	(2110|½)	(21-10|½)
(2120|½)	(2210|½)	($\bar{1}$|0)	($\bar{6}^+$ 001|0)	($\bar{3}^+$ 001|0)
(m001|0)	($\bar{3}^-$ 001|0)	($\bar{6}^-$ 001|0)	(m010|½)	(m100|½)
(m110|½)	(m1-10|½)	(m120|½)	(m210|½)	

Group 27.2.2.297 (Class 2

Group): {(1 | n)}

(1|0)	(6 ⁺ 001|0)	(3 ⁺ 001|0)	(2001|0)	(3 ⁻ 001|0)
(6 ⁻ 001|0)	(2010|½)	(2100|½)	(2110|½)	(21-10|½)
(2120|½)	(2210|½)	($\bar{1}$|0)	($\bar{6}^+$ 001|0)	($\bar{3}^+$ 001|0)
(m001|0)	($\bar{3}^-$ 001|0)	($\bar{6}^-$ 001|0)	(m010|½)	(m100|½)
(m110|½)	(m1-10|½)	(m120|½)	(m210|½)	(1|0)'
(6 ⁺ 001|0)'	(3 ⁺ 001|0)'	(2001|0)'	(3 ⁻ 001|0)'	(6 ⁻ 001|0)'
(2010|½)'	(2100|½)'	(2110|½)'	(21-10|½)'	(2120|½)'
(2210|½)'	($\bar{1}$|0)'	($\bar{6}^+$ 001|0)'	($\bar{3}^+$ 001|0)'	(m001|0)'
($\bar{3}^-$ 001|0)'	($\bar{6}^-$ 001|0)'	(m010|½)'	(m100|½)'	(m110|½)'
(m1-10|½)'	(m120|½)'	(m210|½)'		

Group 27.3.1.298 (Nonmagnetic spacetime group):

{(1 | n)}

(1|0)	(6 ⁺ 001|½)	(3 ⁺ 001|0)	(2001|½)	(3 ⁻ 001|0)
(6 ⁻ 001|½)	(2010|0)	(2100|0)	(2110|0)	(21-10|½)
(2120|½)	(2210|½)	($\bar{1}$|0)	($\bar{6}^+$ 001|½)	($\bar{3}^+$ 001|0)
(m001|½)	($\bar{3}^-$ 001|0)	($\bar{6}^-$ 001|½)	(m010|0)	(m100|0)
(m110|0)	(m1-10|½)	(m120|½)	(m210|½)	

Group 27.3.2.299 (Class 2

Group): {(1 | n)}

(1|0)	(6 ⁺ 001|½)	(3 ⁺ 001|0)	(2001|½)	(3 ⁻ 001|0)
(6 ⁻ 001|½)	(2010|0)	(2100|0)	(2110|0)	(21-10|½)
(2120|½)	(2210|½)	($\bar{1}$|0)	($\bar{6}^+$ 001|½)	($\bar{3}^+$ 001|0)
(m001|½)	($\bar{3}^-$ 001|0)	($\bar{6}^-$ 001|½)	(m010|0)	(m100|0)
(m110|0)	(m1-10|½)	(m120|½)	(m210|½)	(1|0)'
(6 ⁺ 001|½)'	(3 ⁺ 001|0)'	(2001|½)'	(3 ⁻ 001|0)'	(6 ⁻ 001|½)'
(2010|0)'	(2100|0)'	(2110|0)'	(21-10|½)'	(2120|½)'
(2210|½)'	($\bar{1}$|0)'	($\bar{6}^+$ 001|½)'	($\bar{3}^+$ 001|0)'	(m001|½)'
($\bar{3}^-$ 001|0)'	($\bar{6}^-$ 001|½)'	(m010|0)'	(m100|0)'	(m110|0)'

$(m_{1-10} | \frac{1}{2})'$ $(m_{120} | \frac{1}{2})'$ $(m_{210} | \frac{1}{2})'$
]

Group 27.4.1.300 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
 $(1|0)$ $(6^{+001}|0)$ $(3^{+001}|0)$ $(2_{001}|0)$ $(3^{-001}|0)$
 $(6^{-001}|0)$ $(2_{010}|0)$ $(2_{100}|0)$ $(2_{110}|0)$ $(2_{1-10}|0)$
 $(2_{120}|0)$ $(2_{210}|0)$ $(\bar{1}|\frac{1}{2})$ $(\bar{6}^{+001}|\frac{1}{2})$ $(\bar{3}^{+001}|\frac{1}{2})$
 $(m_{001}|\frac{1}{2})$ $(\bar{3}^{-001}|\frac{1}{2})$ $(\bar{6}^{-001}|\frac{1}{2})$ $(m_{010}|\frac{1}{2})$ $(m_{100}|\frac{1}{2})$
 $(m_{110}|\frac{1}{2})$ $(m_{1-10}|\frac{1}{2})$ $(m_{120}|\frac{1}{2})$ $(m_{210}|\frac{1}{2})$
]

Group 27.4.2.301 (Class 2

Group): $\{(1 | n)\}$

[
 $(1|0)$ $(6^{+001}|0)$ $(3^{+001}|0)$ $(2_{001}|0)$ $(3^{-001}|0)$
 $(6^{-001}|0)$ $(2_{010}|0)$ $(2_{100}|0)$ $(2_{110}|0)$ $(2_{1-10}|0)$
 $(2_{120}|0)$ $(2_{210}|0)$ $(\bar{1}|\frac{1}{2})$ $(\bar{6}^{+001}|\frac{1}{2})$ $(\bar{3}^{+001}|\frac{1}{2})$
 $(m_{001}|\frac{1}{2})$ $(\bar{3}^{-001}|\frac{1}{2})$ $(\bar{6}^{-001}|\frac{1}{2})$ $(m_{010}|\frac{1}{2})$ $(m_{100}|\frac{1}{2})$
 $(m_{110}|\frac{1}{2})$ $(m_{1-10}|\frac{1}{2})$ $(m_{120}|\frac{1}{2})$ $(m_{210}|\frac{1}{2})$ $(1|0)'$
 $(6^{+001}|0)'$ $(3^{+001}|0)'$ $(2_{001}|0)'$ $(3^{-001}|0)'$ $(6^{-001}|0)'$
 $(2_{010}|0)'$ $(2_{100}|0)'$ $(2_{110}|0)'$ $(2_{1-10}|0)'$ $(2_{120}|0)'$
 $(2_{210}|0)'$ $(\bar{1}|\frac{1}{2})'$ $(\bar{6}^{+001}|\frac{1}{2})'$ $(\bar{3}^{+001}|\frac{1}{2})'$ $(m_{001}|\frac{1}{2})'$
 $(\bar{3}^{-001}|\frac{1}{2})'$ $(\bar{6}^{-001}|\frac{1}{2})'$ $(m_{010}|\frac{1}{2})'$ $(m_{100}|\frac{1}{2})'$ $(m_{110}|\frac{1}{2})'$
 $(m_{1-10}|\frac{1}{2})'$ $(m_{120}|\frac{1}{2})'$ $(m_{210}|\frac{1}{2})'$
]

Group 27.5.1.302 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
 $(1|0)$ $(6^{+001}|0)$ $(3^{+001}|0)$ $(2_{001}|0)$ $(3^{-001}|0)$
 $(6^{-001}|0)$ $(2_{010}|\frac{1}{2})$ $(2_{100}|\frac{1}{2})$ $(2_{110}|\frac{1}{2})$ $(2_{1-10}|\frac{1}{2})$
 $(2_{120}|\frac{1}{2})$ $(2_{210}|\frac{1}{2})$ $(\bar{1}|\frac{1}{2})$ $(\bar{6}^{+001}|\frac{1}{2})$ $(\bar{3}^{+001}|\frac{1}{2})$
 $(m_{001}|\frac{1}{2})$ $(\bar{3}^{-001}|\frac{1}{2})$ $(\bar{6}^{-001}|\frac{1}{2})$ $(m_{010}|0)$ $(m_{100}|0)$
 $(m_{110}|0)$ $(m_{1-10}|0)$ $(m_{120}|0)$ $(m_{210}|0)$
]

Group 27.5.2.303 (Class 2

Group): $\{(1 | n)\}$

[
 $(1|0)$ $(6^{+001}|0)$ $(3^{+001}|0)$ $(2_{001}|0)$ $(3^{-001}|0)$
 $(6^{-001}|0)$ $(2_{010}|\frac{1}{2})$ $(2_{100}|\frac{1}{2})$ $(2_{110}|\frac{1}{2})$ $(2_{1-10}|\frac{1}{2})$
 $(2_{120}|\frac{1}{2})$ $(2_{210}|\frac{1}{2})$ $(\bar{1}|\frac{1}{2})$ $(\bar{6}^{+001}|\frac{1}{2})$ $(\bar{3}^{+001}|\frac{1}{2})$
 $(m_{001}|\frac{1}{2})$ $(\bar{3}^{-001}|\frac{1}{2})$ $(\bar{6}^{-001}|\frac{1}{2})$ $(m_{010}|0)$ $(m_{100}|0)$
 $(m_{110}|0)$ $(m_{1-10}|0)$ $(m_{120}|0)$ $(m_{210}|0)$ $(1|0)'$
 $(6^{+001}|0)'$ $(3^{+001}|0)'$ $(2_{001}|0)'$ $(3^{-001}|0)'$ $(6^{-001}|0)'$
 $(2_{010}|\frac{1}{2})'$ $(2_{100}|\frac{1}{2})'$ $(2_{110}|\frac{1}{2})'$ $(2_{1-10}|\frac{1}{2})'$ $(2_{120}|\frac{1}{2})'$
 $(2_{210}|\frac{1}{2})'$ $(\bar{1}|\frac{1}{2})'$ $(\bar{6}^{+001}|\frac{1}{2})'$ $(\bar{3}^{+001}|\frac{1}{2})'$ $(m_{001}|\frac{1}{2})'$
 $(\bar{3}^{-001}|\frac{1}{2})'$ $(\bar{6}^{-001}|\frac{1}{2})'$ $(m_{010}|0)'$ $(m_{100}|0)'$ $(m_{110}|0)'$
 $(m_{1-10}|0)'$ $(m_{120}|0)'$ $(m_{210}|0)'$
]

Group 27.6.1.304 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
 $(1|0)$ $(6^{+001}|\frac{1}{2})$ $(3^{+001}|0)$ $(2_{001}|\frac{1}{2})$ $(3^{-001}|0)$
 $(6^{-001}|\frac{1}{2})$ $(2_{010}|0)$ $(2_{100}|0)$ $(2_{110}|0)$ $(2_{1-10}|\frac{1}{2})$
 $(2_{120}|\frac{1}{2})$ $(2_{210}|\frac{1}{2})$ $(\bar{1}|\frac{1}{2})$ $(\bar{6}^{+001}|\frac{1}{2})$ $(\bar{3}^{+001}|\frac{1}{2})$
]

$(m_{001}|0)$	$(\bar{3}^{-001}|\frac{1}{2})$	$(\bar{6}^{-001}|0)$	$(m_{010}|\frac{1}{2})$	$(m_{100}|\frac{1}{2})$
$(m_{110}|\frac{1}{2})$	$(m_{1-10}|0)$	$(m_{120}|0)$	$(m_{210}|0)$	

Group 27.6.2.305 (Class 2
Group): $\{(1 | n)\}$

$(1|0)$	$(6^{+001}|\frac{1}{2})$	$(3^{+001}|0)$	$(2_{001}|\frac{1}{2})$	$(3^{-001}|0)$
$(6^{-001}|\frac{1}{2})$	$(2_{010}|0)$	$(2_{100}|0)$	$(2_{110}|0)$	$(2_{1-10}|\frac{1}{2})$
$(2_{120}|\frac{1}{2})$	$(2_{210}|\frac{1}{2})$	$(\bar{1}|\frac{1}{2})$	$(\bar{6}^{+001}|0)$	$(\bar{3}^{+001}|\frac{1}{2})$
$(m_{001}|0)$	$(\bar{3}^{-001}|\frac{1}{2})$	$(\bar{6}^{-001}|0)$	$(m_{010}|\frac{1}{2})$	$(m_{100}|\frac{1}{2})$
$(m_{110}|\frac{1}{2})$	$(m_{1-10}|0)$	$(m_{120}|0)$	$(m_{210}|0)$	$(1|0)'$
$(6^{+001}|\frac{1}{2})'$	$(3^{+001}|0)'$	$(2_{001}|\frac{1}{2})'$	$(3^{-001}|0)'$	$(6^{-001}|\frac{1}{2})'$
$(2_{010}|0)'$	$(2_{100}|0)'$	$(2_{110}|0)'$	$(2_{1-10}|\frac{1}{2})'$	$(2_{120}|\frac{1}{2})'$
$(2_{210}|\frac{1}{2})'$	$(\bar{1}|\frac{1}{2})'$	$(\bar{6}^{+001}|0)'$	$(\bar{3}^{+001}|\frac{1}{2})'$	$(m_{001}|0)'$
$(\bar{3}^{-001}|\frac{1}{2})'$	$(\bar{6}^{-001}|0)'$	$(m_{010}|\frac{1}{2})'$	$(m_{100}|\frac{1}{2})'$	$(m_{110}|\frac{1}{2})'$
$(m_{1-10}|0)'$	$(m_{120}|0)'$	$(m_{210}|0)'$		

%%

%%

POINT GROUP 28 (23)

%%

Group 28.1.1.306 (Nonmagnetic spacetime group):
 $\{(1 | n)\}$

$(1|0)$	$(2_{001}|0)$	$(2_{010}|0)$	$(2_{100}|0)$	$(3^{+111}|0)$
$(3^{-111}|0)$	$(3^{+11-1}|0)$	$(3^{-11-1}|0)$	$(3^{+1-11}|0)$	$(3^{-1-11}|0)$
$(3^{+1-1-1}|0)$	$(3^{-1-1-1}|0)$			

Group 28.1.2.307 (Class 2
Group): $\{(1 | n)\}$

$(1|0)$	$(2_{001}|0)$	$(2_{010}|0)$	$(2_{100}|0)$	$(3^{+111}|0)$
$(3^{-111}|0)$	$(3^{+11-1}|0)$	$(3^{-11-1}|0)$	$(3^{+1-11}|0)$	$(3^{-1-11}|0)$
$(3^{+1-1-1}|0)$	$(3^{-1-1-1}|0)$	$(1|0)'$	$(2_{001}|0)'$	$(2_{010}|0)'$
$(2_{100}|0)'$	$(3^{+111}|0)'$	$(3^{-111}|0)'$	$(3^{+11-1}|0)'$	$(3^{-11-1}|0)'$
$(3^{+1-11}|0)'$	$(3^{-1-11}|0)'$	$(3^{+1-1-1}|0)'$	$(3^{-1-1-1}|0)'$	

Group 28.1.3.308 (Class 3
Group): $\{(1 | n)\}$

$(1|0)$	$(2_{001}|0)$	$(2_{010}|0)$	$(2_{100}|0)$	$(3^{+111}|0)$
$(3^{-111}|0)$	$(3^{+11-1}|0)$	$(3^{-11-1}|0)$	$(3^{+1-11}|0)$	$(3^{-1-11}|0)$
$(3^{+1-1-1}|0)$	$(3^{-1-1-1}|0)$	$(\bar{1}|0)'$	$(m_{001}|0)'$	$(m_{010}|0)'$
$(m_{100}|0)'$	$(\bar{3}^{+111}|0)'$	$(\bar{3}^{-111}|0)'$	$(\bar{3}^{+11-1}|0)'$	$(\bar{3}^{-11-1}|0)'$
$(\bar{3}^{+1-11}|0)'$	$(\bar{3}^{-1-11}|0)'$	$(\bar{3}^{+1-1-1}|0)'$	$(\bar{3}^{-1-1-1}|0)'$	

 Group 29.1.1.314 (Nonmagnetic spacetime group):

{(1 | n)}

[

(1|0)	(2 ₀₀₁|0)	(2 ₀₁₀|0)	(2 ₁₀₀|0)	(3 ⁺¹¹¹|0)
(3 ⁻¹¹¹|0)	(3 ⁺¹¹⁻¹|0)	(3 ⁻¹¹⁻¹|0)	(3 ⁺¹⁻¹¹|0)	(3 ⁻¹⁻¹¹|0)
(3 ⁺¹⁻¹⁻¹|0)	(3 ⁻¹⁻¹⁻¹|0)	($\bar{1}$|0)	(m ₀₀₁|0)	(m ₀₁₀|0)
(m ₁₀₀|0)	($\bar{3}$ ⁺¹¹¹|0)	($\bar{3}$ ⁻¹¹¹|0)	($\bar{3}$ ⁺¹¹⁻¹|0)	($\bar{3}$ ⁻¹¹⁻¹|0)
($\bar{3}$ ⁺¹⁻¹¹|0)	($\bar{3}$ ⁻¹⁻¹¹|0)	($\bar{3}$ ⁺¹⁻¹⁻¹|0)	($\bar{3}$ ⁻¹⁻¹⁻¹|0)	

]

Group 29.1.2.315 (Class 2 Group): {(1 | n)}

[

(1|0)	(2 ₀₀₁|0)	(2 ₀₁₀|0)	(2 ₁₀₀|0)	(3 ⁺¹¹¹|0)
(3 ⁻¹¹¹|0)	(3 ⁺¹¹⁻¹|0)	(3 ⁻¹¹⁻¹|0)	(3 ⁺¹⁻¹¹|0)	(3 ⁻¹⁻¹¹|0)
(3 ⁺¹⁻¹⁻¹|0)	(3 ⁻¹⁻¹⁻¹|0)	($\bar{1}$|0)	(m ₀₀₁|0)	(m ₀₁₀|0)
(m ₁₀₀|0)	($\bar{3}$ ⁺¹¹¹|0)	($\bar{3}$ ⁻¹¹¹|0)	($\bar{3}$ ⁺¹¹⁻¹|0)	($\bar{3}$ ⁻¹¹⁻¹|0)
($\bar{3}$ ⁺¹⁻¹¹|0)	($\bar{3}$ ⁻¹⁻¹¹|0)	($\bar{3}$ ⁺¹⁻¹⁻¹|0)	($\bar{3}$ ⁻¹⁻¹⁻¹|0)	(1|0)'
(2 ₀₀₁|0)'	(2 ₀₁₀|0)'	(2 ₁₀₀|0)'	(3 ⁺¹¹¹|0)'	(3 ⁻¹¹¹|0)'
(3 ⁺¹¹⁻¹|0)'	(3 ⁻¹¹⁻¹|0)'	(3 ⁺¹⁻¹¹|0)'	(3 ⁻¹⁻¹¹|0)'	(3 ⁺¹⁻¹⁻¹|0)'
(3 ⁻¹⁻¹⁻¹|0)'	($\bar{1}$|0)'	(m ₀₀₁|0)'	(m ₀₁₀|0)'	(m ₁₀₀|0)'
($\bar{3}$ ⁺¹¹¹|0)'	($\bar{3}$ ⁻¹¹¹|0)'	($\bar{3}$ ⁺¹¹⁻¹|0)'	($\bar{3}$ ⁻¹¹⁻¹|0)'	($\bar{3}$ ⁺¹⁻¹¹|0)'
($\bar{3}$ ⁻¹⁻¹¹|0)'	($\bar{3}$ ⁺¹⁻¹⁻¹|0)'	($\bar{3}$ ⁻¹⁻¹⁻¹|0)'		

]

Group 29.1.3.316 (Class 3 Group): {(1 | n)}

[

(1|0)	(2 ₀₀₁|0)	(2 ₀₁₀|0)	(2 ₁₀₀|0)	(3 ⁺¹¹¹|0)
(3 ⁻¹¹¹|0)	(3 ⁺¹¹⁻¹|0)	(3 ⁻¹¹⁻¹|0)	(3 ⁺¹⁻¹¹|0)	(3 ⁻¹⁻¹¹|0)
(3 ⁺¹⁻¹⁻¹|0)	(3 ⁻¹⁻¹⁻¹|0)	($\bar{1}$|0)	(m ₀₀₁|0)	(m ₀₁₀|0)
(m ₁₀₀|0)	($\bar{3}$ ⁺¹¹¹|0)	($\bar{3}$ ⁻¹¹¹|0)	($\bar{3}$ ⁺¹¹⁻¹|0)	($\bar{3}$ ⁻¹¹⁻¹|0)
($\bar{3}$ ⁺¹⁻¹¹|0)	($\bar{3}$ ⁻¹⁻¹¹|0)	($\bar{3}$ ⁺¹⁻¹⁻¹|0)	($\bar{3}$ ⁻¹⁻¹⁻¹|0)	(4 ⁺⁰⁰¹|0)'
(4 ⁻⁰⁰¹|0)'	(4 ⁺⁰¹⁰|0)'	(4 ⁻⁰¹⁰|0)'	(4 ⁺¹⁰⁰|0)'	(4 ⁻¹⁰⁰|0)'
(2 ₀₁₁|0)'	(2 ₀₁₋₁|0)'	(2 ₁₀₁|0)'	(2 ₁₀₋₁|0)'	(2 ₁₁₀|0)'
(2 ₁₋₁₀|0)'	($\bar{4}$ ⁺⁰⁰¹|0)'	($\bar{4}$ ⁻⁰⁰¹|0)'	($\bar{4}$ ⁺⁰¹⁰|0)'	($\bar{4}$ ⁻⁰¹⁰|0)'
($\bar{4}$ ⁺¹⁰⁰|0)'	($\bar{4}$ ⁻¹⁰⁰|0)'	(m ₀₁₁|0)'	(m ₀₁₋₁|0)'	(m ₁₀₁|0)'
(m ₁₀₋₁|0)'	(m ₁₁₀|0)'	(m ₁₋₁₀|0)'		

]

 Group 29.2.1.317 (Nonmagnetic spacetime group):

{(1 | n)}

[

(1|0)	(2 ₀₀₁|0)	(2 ₀₁₀|0)	(2 ₁₀₀|0)	(3 ⁺¹¹¹|$\frac{1}{3}$)
(3 ⁻¹¹¹|$\frac{2}{3}$)	(3 ⁺¹¹⁻¹|$\frac{2}{3}$)	(3 ⁻¹¹⁻¹|$\frac{1}{3}$)	(3 ⁺¹⁻¹¹|$\frac{2}{3}$)	(3 ⁻¹⁻¹¹|$\frac{1}{3}$)
(3 ⁺¹⁻¹⁻¹|$\frac{1}{3}$)	(3 ⁻¹⁻¹⁻¹|$\frac{2}{3}$)	($\bar{1}$|0)	(m ₀₀₁|0)	(m ₀₁₀|0)
(m ₁₀₀|0)	($\bar{3}$ ⁺¹¹¹|$\frac{1}{3}$)	($\bar{3}$ ⁻¹¹¹|$\frac{2}{3}$)	($\bar{3}$ ⁺¹¹⁻¹|$\frac{2}{3}$)	($\bar{3}$ ⁻¹¹⁻¹|$\frac{1}{3}$)
($\bar{3}$ ⁺¹⁻¹¹|$\frac{2}{3}$)	($\bar{3}$ ⁻¹⁻¹¹|$\frac{1}{3}$)	($\bar{3}$ ⁺¹⁻¹⁻¹|$\frac{1}{3}$)	($\bar{3}$ ⁻¹⁻¹⁻¹|$\frac{2}{3}$)	

]

Group 29.2.2.318 (Class 3 Group): {(1 | n)}

[

(1|0)	(2 ₀₀₁|0)	(2 ₀₁₀|0)	(2 ₁₀₀|0)	(3 ⁺¹¹¹|$\frac{1}{3}$)
(3 ⁻¹¹¹|$\frac{2}{3}$)	(3 ⁺¹¹⁻¹|$\frac{2}{3}$)	(3 ⁻¹¹⁻¹|$\frac{1}{3}$)	(3 ⁺¹⁻¹¹|$\frac{2}{3}$)	(3 ⁻¹⁻¹¹|$\frac{1}{3}$)
(3 ⁺¹⁻¹⁻¹|$\frac{1}{3}$)	(3 ⁻¹⁻¹⁻¹|$\frac{2}{3}$)	($\bar{1}$|0)	(m ₀₀₁|0)	(m ₀₁₀|0)
(m ₁₀₀|0)	($\bar{3}$ ⁺¹¹¹|$\frac{1}{3}$)	($\bar{3}$ ⁻¹¹¹|$\frac{2}{3}$)	($\bar{3}$ ⁺¹¹⁻¹|$\frac{2}{3}$)	($\bar{3}$ ⁻¹¹⁻¹|$\frac{1}{3}$)
($\bar{3}$ ⁺¹⁻¹¹|$\frac{2}{3}$)	($\bar{3}$ ⁻¹⁻¹¹|$\frac{1}{3}$)	($\bar{3}$ ⁺¹⁻¹⁻¹|$\frac{1}{3}$)	($\bar{3}$ ⁻¹⁻¹⁻¹|$\frac{2}{3}$)	(4 ⁺⁰⁰¹|0)'

]

$(4^{-001}|0)'$	$(4^{+010}|\frac{1}{3})'$	$(4^{-010}|\frac{1}{3})'$	$(4^{+100}|\frac{2}{3})'$	$(4^{-100}|\frac{2}{3})'$
$(2_{011}|\frac{2}{3})'$	$(2_{01-1}|\frac{2}{3})'$	$(2_{101}|\frac{1}{3})'$	$(2_{10-1}|\frac{1}{3})'$	$(2_{110}|0)'$
$(2_{1-10}|0)'$	$(\bar{4}^{+001}|0)'$	$(\bar{4}^{-001}|0)'$	$(\bar{4}^{+010}|\frac{1}{3})'$	$(\bar{4}^{-010}|\frac{1}{3})'$
$(\bar{4}^{+100}|\frac{2}{3})'$	$(\bar{4}^{-100}|\frac{2}{3})'$	$(m_{011}|\frac{2}{3})'$	$(m_{01-1}|\frac{2}{3})'$	$(m_{101}|\frac{1}{3})'$
$(m_{10-1}|\frac{1}{3})'$	$(m_{110}|0)'$	$(m_{1-10}|0)'$		

]

Group 29.3.1.319 (Nonmagnetic spacetime group):

{(1 | n)}

[

$(1|0)$	$(2_{001}|0)$	$(2_{010}|0)$	$(2_{100}|0)$	$(3^{+111}|0)$
$(3^{-111}|0)$	$(3^{+11-1}|0)$	$(3^{-11-1}|0)$	$(3^{+1-11}|0)$	$(3^{-1-11}|0)$
$(3^{+1-1-1}|0)$	$(3^{-1-1-1}|0)$	$(\bar{1}|\frac{1}{2})$	$(m_{001}|\frac{1}{2})$	$(m_{010}|\frac{1}{2})$
$(m_{100}|\frac{1}{2})$	$(\bar{3}^{+111}|\frac{1}{2})$	$(\bar{3}^{-111}|\frac{1}{2})$	$(\bar{3}^{+11-1}|\frac{1}{2})$	$(\bar{3}^{-11-1}|\frac{1}{2})$
$(\bar{3}^{+1-11}|\frac{1}{2})$	$(\bar{3}^{-1-11}|\frac{1}{2})$	$(\bar{3}^{+1-1-1}|\frac{1}{2})$	$(\bar{3}^{-1-1-1}|\frac{1}{2})$	

]

Group 29.3.2.320 (Class 2

Group): {(1 | n)}

[

$(1|0)$	$(2_{001}|0)$	$(2_{010}|0)$	$(2_{100}|0)$	$(3^{+111}|0)$
$(3^{-111}|0)$	$(3^{+11-1}|0)$	$(3^{-11-1}|0)$	$(3^{+1-11}|0)$	$(3^{-1-11}|0)$
$(3^{+1-1-1}|0)$	$(3^{-1-1-1}|0)$	$(\bar{1}|\frac{1}{2})$	$(m_{001}|\frac{1}{2})$	$(m_{010}|\frac{1}{2})$
$(m_{100}|\frac{1}{2})$	$(\bar{3}^{+111}|\frac{1}{2})$	$(\bar{3}^{-111}|\frac{1}{2})$	$(\bar{3}^{+11-1}|\frac{1}{2})$	$(\bar{3}^{-11-1}|\frac{1}{2})$
$(\bar{3}^{+1-11}|\frac{1}{2})$	$(\bar{3}^{-1-11}|\frac{1}{2})$	$(\bar{3}^{+1-1-1}|\frac{1}{2})$	$(\bar{3}^{-1-1-1}|\frac{1}{2})$	$(1|0)'$
$(2_{001}|0)'$	$(2_{010}|0)'$	$(2_{100}|0)'$	$(3^{+111}|0)'$	$(3^{-111}|0)'$
$(3^{+11-1}|0)'$	$(3^{-11-1}|0)'$	$(3^{+1-11}|0)'$	$(3^{-1-11}|0)'$	$(3^{+1-1-1}|0)'$
$(3^{-1-1-1}|0)'$	$(\bar{1}|\frac{1}{2})'$	$(m_{001}|\frac{1}{2})'$	$(m_{010}|\frac{1}{2})'$	$(m_{100}|\frac{1}{2})'$
$(\bar{3}^{+111}|\frac{1}{2})'$	$(\bar{3}^{-111}|\frac{1}{2})'$	$(\bar{3}^{+11-1}|\frac{1}{2})'$	$(\bar{3}^{-11-1}|\frac{1}{2})'$	$(\bar{3}^{+1-11}|\frac{1}{2})'$
$(\bar{3}^{-1-11}|\frac{1}{2})'$	$(\bar{3}^{+1-1-1}|\frac{1}{2})'$	$(\bar{3}^{-1-1-1}|\frac{1}{2})'$		

]

Group 29.3.3.321 (Class 3

Group): {(1 | n)}

[

$(1|0)$	$(2_{001}|0)$	$(2_{010}|0)$	$(2_{100}|0)$	$(3^{+111}|0)$
$(3^{-111}|0)$	$(3^{+11-1}|0)$	$(3^{-11-1}|0)$	$(3^{+1-11}|0)$	$(3^{-1-11}|0)$
$(3^{+1-1-1}|0)$	$(3^{-1-1-1}|0)$	$(\bar{1}|\frac{1}{2})$	$(m_{001}|\frac{1}{2})$	$(m_{010}|\frac{1}{2})$
$(m_{100}|\frac{1}{2})$	$(\bar{3}^{+111}|\frac{1}{2})$	$(\bar{3}^{-111}|\frac{1}{2})$	$(\bar{3}^{+11-1}|\frac{1}{2})$	$(\bar{3}^{-11-1}|\frac{1}{2})$
$(\bar{3}^{+1-11}|\frac{1}{2})$	$(\bar{3}^{-1-11}|\frac{1}{2})$	$(\bar{3}^{+1-1-1}|\frac{1}{2})$	$(\bar{3}^{-1-1-1}|\frac{1}{2})$	$(4^{+001}|0)'$
$(4^{-001}|0)'$	$(4^{+010}|0)'$	$(4^{-010}|0)'$	$(4^{+100}|0)'$	$(4^{-100}|0)'$
$(2_{011}|0)'$	$(2_{01-1}|0)'$	$(2_{101}|0)'$	$(2_{10-1}|0)'$	$(2_{110}|0)'$
$(2_{1-10}|0)'$	$(\bar{4}^{+001}|\frac{1}{2})'$	$(\bar{4}^{-001}|\frac{1}{2})'$	$(\bar{4}^{+010}|\frac{1}{2})'$	$(\bar{4}^{-010}|\frac{1}{2})'$
$(\bar{4}^{+100}|\frac{1}{2})'$	$(\bar{4}^{-100}|\frac{1}{2})'$	$(m_{011}|\frac{1}{2})'$	$(m_{01-1}|\frac{1}{2})'$	$(m_{101}|\frac{1}{2})'$
$(m_{10-1}|\frac{1}{2})'$	$(m_{110}|\frac{1}{2})'$	$(m_{1-10}|\frac{1}{2})'$		

]

Group 29.4.1.322 (Nonmagnetic spacetime group):

{(1 | n)}

[

$(1|0)$	$(2_{001}|0)$	$(2_{010}|0)$	$(2_{100}|0)$	$(3^{+111}|\frac{1}{3})$
$(3^{-111}|\frac{2}{3})$	$(3^{+11-1}|\frac{2}{3})$	$(3^{-11-1}|\frac{1}{3})$	$(3^{+1-11}|\frac{2}{3})$	$(3^{-1-11}|\frac{1}{3})$
$(3^{+1-1-1}|\frac{1}{3})$	$(3^{-1-1-1}|\frac{2}{3})$	$(\bar{1}|\frac{1}{2})$	$(m_{001}|\frac{1}{2})$	$(m_{010}|\frac{1}{2})$
$(m_{100}|\frac{1}{2})$	$(\bar{3}^{+111}|\frac{1}{6})$	$(\bar{3}^{-111}|\frac{1}{6})$	$(\bar{3}^{+11-1}|\frac{1}{6})$	$(\bar{3}^{-11-1}|\frac{1}{6})$
$(\bar{3}^{+1-11}|\frac{1}{6})$	$(\bar{3}^{-1-11}|\frac{1}{6})$	$(\bar{3}^{+1-1-1}|\frac{1}{6})$	$(\bar{3}^{-1-1-1}|\frac{1}{6})$	

]

Group 29.4.2.323 (Class 3

Group): {(1 | n)}

[

$(1|0)$	$(2_{001}|0)$	$(2_{010}|0)$	$(2_{100}|0)$	$(3^{+111}|\frac{1}{3})$
$(3^{-111}|\frac{2}{3})$	$(3^{+11-1}|\frac{2}{3})$	$(3^{-11-1}|\frac{1}{3})$	$(3^{+1-11}|\frac{2}{3})$	$(3^{-1-11}|\frac{1}{3})$
$(3^{+1-1-1}|\frac{1}{3})$	$(3^{-1-1-1}|\frac{2}{3})$	$(\bar{1}|\frac{1}{2})$	$(m_{001}|\frac{1}{2})$	$(m_{010}|\frac{1}{2})$
$(m_{100}|\frac{1}{2})$	$(\bar{3}^{+111}|\frac{5}{6})$	$(\bar{3}^{-111}|\frac{1}{6})$	$(\bar{3}^{+11-1}|\frac{1}{6})$	$(\bar{3}^{-11-1}|\frac{5}{6})$
$(\bar{3}^{+1-11}|\frac{1}{6})$	$(\bar{3}^{-1-11}|\frac{5}{6})$	$(\bar{3}^{+1-1-1}|\frac{5}{6})$	$(\bar{3}^{-1-1-1}|\frac{1}{6})$	$(4^{+001}|0)'$
$(4^{-001}|0)'$	$(4^{+010}|\frac{1}{3})'$	$(4^{-010}|\frac{1}{3})'$	$(4^{+100}|\frac{2}{3})'$	$(4^{-100}|\frac{2}{3})'$
$(2_{011}|\frac{2}{3})'$	$(2_{01-1}|\frac{2}{3})'$	$(2_{101}|\frac{1}{3})'$	$(2_{10-1}|\frac{1}{3})'$	$(2_{110}|0)'$
$(2_{1-10}|0)'$	$(\bar{4}^{+001}|\frac{1}{2})'$	$(\bar{4}^{-001}|\frac{1}{2})'$	$(\bar{4}^{+010}|\frac{5}{6})'$	$(\bar{4}^{-010}|\frac{5}{6})'$
$(\bar{4}^{+100}|\frac{1}{6})'$	$(\bar{4}^{-100}|\frac{1}{6})'$	$(m_{011}|\frac{1}{6})'$	$(m_{01-1}|\frac{1}{6})'$	$(m_{101}|\frac{5}{6})'$
$(m_{10-1}|\frac{5}{6})'$	$(m_{110}|\frac{1}{2})'$	$(m_{1-10}|\frac{1}{2})'$		

%%%

%%%

%%%

%%%

POINT GROUP 30 (432)

%%%

%%%

Group 30.1.1.324 (Nonmagnetic spacetime group):

{(1 | n)}

[

$(1|0)$	$(4^{+001}|0)$	$(2_{001}|0)$	$(4^{-001}|0)$	$(4^{+010}|0)$
$(2_{010}|0)$	$(4^{-010}|0)$	$(4^{+100}|0)$	$(2_{100}|0)$	$(4^{-100}|0)$
$(2_{011}|0)$	$(2_{01-1}|0)$	$(2_{101}|0)$	$(2_{10-1}|0)$	$(2_{110}|0)$
$(2_{1-10}|0)$	$(3^{+111}|0)$	$(3^{-111}|0)$	$(3^{+11-1}|0)$	$(3^{-11-1}|0)$
$(3^{+1-11}|0)$	$(3^{-1-11}|0)$	$(3^{+1-1-1}|0)$	$(3^{-1-1-1}|0)$	

]

Group 30.1.2.325 (Class 2 Group): {(1 | n)}

[

$(1|0)$	$(4^{+001}|0)$	$(2_{001}|0)$	$(4^{-001}|0)$	$(4^{+010}|0)$
$(2_{010}|0)$	$(4^{-010}|0)$	$(4^{+100}|0)$	$(2_{100}|0)$	$(4^{-100}|0)$
$(2_{011}|0)$	$(2_{01-1}|0)$	$(2_{101}|0)$	$(2_{10-1}|0)$	$(2_{110}|0)$
$(2_{1-10}|0)$	$(3^{+111}|0)$	$(3^{-111}|0)$	$(3^{+11-1}|0)$	$(3^{-11-1}|0)$
$(3^{+1-11}|0)$	$(3^{-1-11}|0)$	$(3^{+1-1-1}|0)$	$(3^{-1-1-1}|0)$	$(1|0)'$
$(4^{+001}|0)'$	$(2_{001}|0)'$	$(4^{-001}|0)'$	$(4^{+010}|0)'$	$(2_{010}|0)'$
$(4^{-010}|0)'$	$(4^{+100}|0)'$	$(2_{100}|0)'$	$(4^{-100}|0)'$	$(2_{011}|0)'$
$(2_{01-1}|0)'$	$(2_{101}|0)'$	$(2_{10-1}|0)'$	$(2_{110}|0)'$	$(2_{1-10}|0)'$
$(3^{+111}|0)'$	$(3^{-111}|0)'$	$(3^{+11-1}|0)'$	$(3^{-11-1}|0)'$	$(3^{+1-11}|0)'$
$(3^{-1-11}|0)'$	$(3^{+1-1-1}|0)'$	$(3^{-1-1-1}|0)'$		

]

Group 30.1.3.326 (Class 3 Group): {(1 | n)}

[

$(1|0)$	$(4^{+001}|0)$	$(2_{001}|0)$	$(4^{-001}|0)$	$(4^{+010}|0)$
$(2_{010}|0)$	$(4^{-010}|0)$	$(4^{+100}|0)$	$(2_{100}|0)$	$(4^{-100}|0)$
$(2_{011}|0)$	$(2_{01-1}|0)$	$(2_{101}|0)$	$(2_{10-1}|0)$	$(2_{110}|0)$
$(2_{1-10}|0)$	$(3^{+111}|0)$	$(3^{-111}|0)$	$(3^{+11-1}|0)$	$(3^{-11-1}|0)$
$(3^{+1-11}|0)$	$(3^{-1-11}|0)$	$(3^{+1-1-1}|0)$	$(3^{-1-1-1}|0)$	$(\bar{1}|0)'$
$(\bar{4}^{+001}|0)'$	$(m_{001}|0)'$	$(\bar{4}^{-001}|0)'$	$(\bar{4}^{+010}|0)'$	$(m_{010}|0)'$

]

$(\bar{4}^{-010}|0)'$	$(\bar{4}^{+100}|0)'$	$(m_{100}|0)'$	$(\bar{4}^{-100}|0)'$	$(m_{011}|0)'$
$(m_{01-1}|0)'$	$(m_{101}|0)'$	$(m_{10-1}|0)'$	$(m_{110}|0)'$	$(m_{1-10}|0)'$
$(\bar{3}^{+111}|0)'$	$(\bar{3}^{-111}|0)'$	$(\bar{3}^{+11-1}|0)'$	$(\bar{3}^{-11-1}|0)'$	$(\bar{3}^{+1-11}|0)'$
$(\bar{3}^{-1-11}|0)'$	$(\bar{3}^{+1-1-1}|0)'$	$(\bar{3}^{-1-1-1}|0)'$		

Group 30.2.1.327 (Nonmagnetic spacetime group):

{(1 | n)}

[

$(1|0)$	$(4^{+001}|\frac{1}{2})$	$(2_{001}|0)$	$(4^{-001}|\frac{1}{2})$	$(4^{+010}|\frac{1}{2})$
$(2_{010}|0)$	$(4^{-010}|\frac{1}{2})$	$(4^{+100}|\frac{1}{2})$	$(2_{100}|0)$	$(4^{-100}|\frac{1}{2})$
$(2_{011}|\frac{1}{2})$	$(2_{01-1}|\frac{1}{2})$	$(2_{101}|\frac{1}{2})$	$(2_{10-1}|\frac{1}{2})$	$(2_{110}|\frac{1}{2})$
$(2_{1-10}|\frac{1}{2})$	$(3^{+111}|0)$	$(3^{-111}|0)$	$(3^{+11-1}|0)$	$(3^{-11-1}|0)$
$(3^{+1-11}|0)$	$(3^{-1-11}|0)$	$(3^{+1-1-1}|0)$	$(3^{-1-1-1}|0)$	

]

Group 30.2.2.328 (Class 2

Group): {(1 | n)}

[

$(1|0)$	$(4^{+001}|\frac{1}{2})$	$(2_{001}|0)$	$(4^{-001}|\frac{1}{2})$	$(4^{+010}|\frac{1}{2})$
$(2_{010}|0)$	$(4^{-010}|\frac{1}{2})$	$(4^{+100}|\frac{1}{2})$	$(2_{100}|0)$	$(4^{-100}|\frac{1}{2})$
$(2_{011}|\frac{1}{2})$	$(2_{01-1}|\frac{1}{2})$	$(2_{101}|\frac{1}{2})$	$(2_{10-1}|\frac{1}{2})$	$(2_{110}|\frac{1}{2})$
$(2_{1-10}|\frac{1}{2})$	$(3^{+111}|0)$	$(3^{-111}|0)$	$(3^{+11-1}|0)$	$(3^{-11-1}|0)$
$(3^{+1-11}|0)$	$(3^{-1-11}|0)$	$(3^{+1-1-1}|0)$	$(3^{-1-1-1}|0)$	$(1|0)'$
$(4^{+001}|\frac{1}{2})'$	$(2_{001}|0)'$	$(4^{-001}|\frac{1}{2})'$	$(4^{+010}|\frac{1}{2})'$	$(2_{010}|0)'$
$(4^{-010}|\frac{1}{2})'$	$(4^{+100}|\frac{1}{2})'$	$(2_{100}|0)'$	$(4^{-100}|\frac{1}{2})'$	$(2_{011}|\frac{1}{2})'$
$(2_{01-1}|\frac{1}{2})'$	$(2_{101}|\frac{1}{2})'$	$(2_{10-1}|\frac{1}{2})'$	$(2_{110}|\frac{1}{2})'$	$(2_{1-10}|\frac{1}{2})'$
$(3^{+111}|0)'$	$(3^{-111}|0)'$	$(3^{+11-1}|0)'$	$(3^{-11-1}|0)'$	$(3^{+1-11}|0)'$
$(3^{-1-11}|0)'$	$(3^{+1-1-1}|0)'$	$(3^{-1-1-1}|0)'$		

]

Group 30.2.3.329 (Class 3

Group): {(1 | n)}

[

$(1|0)$	$(4^{+001}|\frac{1}{2})$	$(2_{001}|0)$	$(4^{-001}|\frac{1}{2})$	$(4^{+010}|\frac{1}{2})$
$(2_{010}|0)$	$(4^{-010}|\frac{1}{2})$	$(4^{+100}|\frac{1}{2})$	$(2_{100}|0)$	$(4^{-100}|\frac{1}{2})$
$(2_{011}|\frac{1}{2})$	$(2_{01-1}|\frac{1}{2})$	$(2_{101}|\frac{1}{2})$	$(2_{10-1}|\frac{1}{2})$	$(2_{110}|\frac{1}{2})$
$(2_{1-10}|\frac{1}{2})$	$(3^{+111}|0)$	$(3^{-111}|0)$	$(3^{+11-1}|0)$	$(3^{-11-1}|0)$
$(3^{+1-11}|0)$	$(3^{-1-11}|0)$	$(3^{+1-1-1}|0)$	$(3^{-1-1-1}|0)$	$(\bar{1}|0)'$
$(\bar{4}^{+001}|\frac{1}{2})'$	$(m_{001}|0)'$	$(\bar{4}^{-001}|\frac{1}{2})'$	$(\bar{4}^{+010}|\frac{1}{2})'$	$(m_{010}|0)'$
$(\bar{4}^{-010}|\frac{1}{2})'$	$(\bar{4}^{+100}|\frac{1}{2})'$	$(m_{100}|0)'$	$(\bar{4}^{-100}|\frac{1}{2})'$	$(m_{011}|\frac{1}{2})'$
$(m_{01-1}|\frac{1}{2})'$	$(m_{101}|\frac{1}{2})'$	$(m_{10-1}|\frac{1}{2})'$	$(m_{110}|\frac{1}{2})'$	$(m_{1-10}|\frac{1}{2})'$
$(\bar{3}^{+111}|0)'$	$(\bar{3}^{-111}|0)'$	$(\bar{3}^{+11-1}|0)'$	$(\bar{3}^{-11-1}|0)'$	$(\bar{3}^{+1-11}|0)'$
$(\bar{3}^{-1-11}|0)'$	$(\bar{3}^{+1-1-1}|0)'$	$(\bar{3}^{-1-1-1}|0)'$		

]

%%

%%

%%

%%

POINT GROUP 31 (-43m)

%%

%%

Group 31.1.1.330 (Nonmagnetic spacetime group):

```
{(1 | n)}
[
(1|0)          (2 0 0 1|0)      (2 0 1 0|0)      (2 1 0 0|0)      (3+ 1 1 1|0)
(3- 1 1 1|0)   (3+ 1 1 -1|0)     (3- 1 1 -1|0)    (3+ 1 -1 1|0)    (3- 1 -1 1|0)
(3+ 1 -1 -1|0) (3- 1 -1 -1|0)    (4+ 0 0 1|0)    (4- 0 0 1|0)    (4+ 0 1 0|0)
(4- 0 1 0|0)   (4+ 1 0 0|0)      (4- 1 0 0|0)    (m 0 1 1|0)     (m 0 1 -1|0)
(m 1 0 1|0)    (m 1 0 -1|0)     (m 1 1 0|0)     (m 1 -1 0|0)
]
```

Group 31.1.2.331 (Class 2

Group): {(1 | n)}

```
[
(1|0)          (2 0 0 1|0)      (2 0 1 0|0)      (2 1 0 0|0)      (3+ 1 1 1|0)
(3- 1 1 1|0)   (3+ 1 1 -1|0)     (3- 1 1 -1|0)    (3+ 1 -1 1|0)    (3- 1 -1 1|0)
(3+ 1 -1 -1|0) (3- 1 -1 -1|0)    (4+ 0 0 1|0)    (4- 0 0 1|0)    (4+ 0 1 0|0)
(4- 0 1 0|0)   (4+ 1 0 0|0)      (4- 1 0 0|0)    (m 0 1 1|0)     (m 0 1 -1|0)
(m 1 0 1|0)    (m 1 0 -1|0)     (m 1 1 0|0)     (m 1 -1 0|0)    (1|0)'
(2 0 0 1|0)'   (2 0 1 0|0)'     (2 1 0 0|0)'     (3+ 1 1 1|0)'    (3- 1 1 1|0)'
(3+ 1 1 -1|0) (3- 1 1 -1|0)'   (3+ 1 -1 1|0)'   (3- 1 -1 1|0)'   (3+ 1 -1 -1|0)'
(3- 1 -1 -1|0)' (4+ 0 0 1|0)'   (4- 0 0 1|0)'   (4+ 0 1 0|0)'   (4- 0 1 0|0)'
(4+ 1 0 0|0)'   (4- 1 0 0|0)'   (m 0 1 1|0)'   (m 0 1 -1|0)'   (m 1 0 1|0)'
(m 1 0 -1|0)'   (m 1 1 0|0)'     (m 1 -1 0|0)'
]
```

Group 31.1.3.332 (Class 3

Group): {(1 | n)}

```
[
(1|0)          (2 0 0 1|0)      (2 0 1 0|0)      (2 1 0 0|0)      (3+ 1 1 1|0)
(3- 1 1 1|0)   (3+ 1 1 -1|0)     (3- 1 1 -1|0)    (3+ 1 -1 1|0)    (3- 1 -1 1|0)
(3+ 1 -1 -1|0) (3- 1 -1 -1|0)    (4+ 0 0 1|0)    (4- 0 0 1|0)    (4+ 0 1 0|0)
(4- 0 1 0|0)   (4+ 1 0 0|0)      (4- 1 0 0|0)    (m 0 1 1|0)     (m 0 1 -1|0)
(m 1 0 1|0)    (m 1 0 -1|0)     (m 1 1 0|0)     (m 1 -1 0|0)    (4+ 0 0 1|0)'
(4- 0 0 1|0)'   (4+ 0 1 0|0)'   (4- 0 1 0|0)'   (4+ 1 0 0|0)'   (4- 1 0 0|0)'
(2 0 1 1|0)'   (2 0 1 -1|0)'    (2 1 0 1|0)'    (2 1 0 -1|0)'    (2 1 1 0|0)'
(2 1 -1 0|0)'   (1|0)'           (m 0 0 1|0)'    (m 0 1 0|0)'    (m 1 0 0|0)'
(3+ 1 1 1|0)'   (3- 1 1 1|0)'    (3+ 1 1 -1|0)'   (3- 1 1 -1|0)'   (3+ 1 -1 1|0)'
(3- 1 -1 1|0)'   (3+ 1 -1 -1|0)' (3- 1 -1 -1|0)' (3- 1 -1 -1|0)'
]
```

Group 31.2.1.333 (Nonmagnetic spacetime group):

```
{(1 | n)}
[
(1|0)          (2 0 0 1|0)      (2 0 1 0|0)      (2 1 0 0|0)      (3+ 1 1 1|0)
(3- 1 1 1|0)   (3+ 1 1 -1|0)     (3- 1 1 -1|0)    (3+ 1 -1 1|0)    (3- 1 -1 1|0)
(3+ 1 -1 -1|0) (3- 1 -1 -1|0)    (4+ 0 0 1|1/2)  (4- 0 0 1|1/2)  (4+ 0 1 0|1/2)
(4- 0 1 0|1/2) (4+ 1 0 0|1/2)   (4- 1 0 0|1/2)  (m 0 1 1|1/2)   (m 0 1 -1|1/2)
(m 1 0 1|1/2)  (m 1 0 -1|1/2)  (m 1 1 0|1/2)   (m 1 -1 0|1/2)
]
```

Group 31.2.2.334 (Class 2

Group): {(1 | n)}

```
[
(1|0)          (2 0 0 1|0)      (2 0 1 0|0)      (2 1 0 0|0)      (3+ 1 1 1|0)
(3- 1 1 1|0)   (3+ 1 1 -1|0)     (3- 1 1 -1|0)    (3+ 1 -1 1|0)    (3- 1 -1 1|0)
(3+ 1 -1 -1|0) (3- 1 -1 -1|0)    (4+ 0 0 1|1/2)  (4- 0 0 1|1/2)  (4+ 0 1 0|1/2)
(4- 0 1 0|1/2) (4+ 1 0 0|1/2)   (4- 1 0 0|1/2)  (m 0 1 1|1/2)   (m 0 1 -1|1/2)
(m 1 0 1|1/2)  (m 1 0 -1|1/2)  (m 1 1 0|1/2)   (m 1 -1 0|1/2)  (1|0)'
(2 0 0 1|0)'   (2 0 1 0|0)'     (2 1 0 0|0)'     (3+ 1 1 1|0)'    (3- 1 1 1|0)'
(3+ 1 1 -1|0)' (3- 1 1 -1|0)'   (3+ 1 -1 1|0)'   (3- 1 -1 1|0)'   (3+ 1 -1 -1|0)'
(3- 1 -1 -1|0)' (4+ 0 0 1|1/2)' (4- 0 0 1|1/2)' (4+ 0 1 0|1/2)' (4- 0 1 0|1/2)'
(4+ 1 0 0|1/2)' (4- 1 0 0|1/2)' (m 0 1 1|1/2)'   (m 0 1 -1|1/2)' (m 1 0 1|1/2)'
]
```

$(m_{10-1} | \frac{1}{2})'$ $(m_{110} | \frac{1}{2})'$ $(m_{1-10} | \frac{1}{2})'$
]

Group 31.2.3.335 (Class 3

Group): $\{(1 | n)\}$

[
 $(1|0)$ $(2_{001}|0)$ $(2_{010}|0)$ $(2_{100}|0)$ $(3^{+111}|0)$
 $(3^{-111}|0)$ $(3^{+11-1}|0)$ $(3^{-11-1}|0)$ $(3^{+1-11}|0)$ $(3^{-1-11}|0)$
 $(3^{+1-1-1}|0)$ $(3^{-1-1-1}|0)$ $(\bar{4}^{+001} | \frac{1}{2})'$ $(\bar{4}^{-001} | \frac{1}{2})'$ $(\bar{4}^{+010} | \frac{1}{2})'$
 $(\bar{4}^{-010} | \frac{1}{2})'$ $(\bar{4}^{+100} | \frac{1}{2})'$ $(\bar{4}^{-100} | \frac{1}{2})'$ $(m_{011} | \frac{1}{2})'$ $(m_{01-1} | \frac{1}{2})'$
 $(m_{101} | \frac{1}{2})'$ $(m_{10-1} | \frac{1}{2})'$ $(m_{110} | \frac{1}{2})'$ $(m_{1-10} | \frac{1}{2})'$ $(4^{+001}|0)'$
 $(4^{-001}|0)'$ $(4^{+010}|0)'$ $(4^{-010}|0)'$ $(4^{+100}|0)'$ $(4^{-100}|0)'$
 $(2_{011}|0)'$ $(2_{01-1}|0)'$ $(2_{101}|0)'$ $(2_{10-1}|0)'$ $(2_{110}|0)'$
 $(2_{1-10}|0)'$ $(\bar{1} | \frac{1}{2})'$ $(m_{001} | \frac{1}{2})'$ $(m_{010} | \frac{1}{2})'$ $(m_{100} | \frac{1}{2})'$
 $(\bar{3}^{+111} | \frac{1}{2})'$ $(\bar{3}^{-111} | \frac{1}{2})'$ $(\bar{3}^{+11-1} | \frac{1}{2})'$ $(\bar{3}^{-11-1} | \frac{1}{2})'$ $(\bar{3}^{+1-11} | \frac{1}{2})'$
 $(\bar{3}^{-1-11} | \frac{1}{2})'$ $(\bar{3}^{+1-1-1} | \frac{1}{2})'$ $(\bar{3}^{-1-1-1} | \frac{1}{2})'$
]

%%
%%

%%
%%

POINT GROUP 32 (m-3m)

%%
%%

Group 32.1.1.336 (Nonmagnetic spacetime group):

$\{(1 | n)\}$

[
 $(1|0)$ $(4^{+001}|0)$ $(2_{001}|0)$ $(4^{-001}|0)$ $(4^{+010}|0)$
 $(2_{010}|0)$ $(4^{-010}|0)$ $(4^{+100}|0)$ $(2_{100}|0)$ $(4^{-100}|0)$
 $(2_{011}|0)$ $(2_{01-1}|0)$ $(2_{101}|0)$ $(2_{10-1}|0)$ $(2_{110}|0)$
 $(2_{1-10}|0)$ $(3^{+111}|0)$ $(3^{-111}|0)$ $(3^{+11-1}|0)$ $(3^{-11-1}|0)$
 $(3^{+1-11}|0)$ $(3^{-1-11}|0)$ $(3^{+1-1-1}|0)$ $(3^{-1-1-1}|0)$ $(\bar{1}|0)$
 $(\bar{4}^{+001}|0)$ $(m_{001}|0)$ $(\bar{4}^{-001}|0)$ $(\bar{4}^{+010}|0)$ $(m_{010}|0)$
 $(\bar{4}^{-010}|0)$ $(\bar{4}^{+100}|0)$ $(m_{100}|0)$ $(\bar{4}^{-100}|0)$ $(m_{011}|0)$
 $(m_{01-1}|0)$ $(m_{101}|0)$ $(m_{10-1}|0)$ $(m_{110}|0)$ $(m_{1-10}|0)$
 $(\bar{3}^{+111}|0)$ $(\bar{3}^{-111}|0)$ $(\bar{3}^{+11-1}|0)$ $(\bar{3}^{-11-1}|0)$ $(\bar{3}^{+1-11}|0)$
 $(\bar{3}^{-1-11}|0)$ $(\bar{3}^{+1-1-1}|0)$ $(\bar{3}^{-1-1-1}|0)$
]

Group 32.1.2.337 (Class 2

Group): $\{(1 | n)\}$

[
 $(1|0)$ $(4^{+001}|0)$ $(2_{001}|0)$ $(4^{-001}|0)$ $(4^{+010}|0)$
 $(2_{010}|0)$ $(4^{-010}|0)$ $(4^{+100}|0)$ $(2_{100}|0)$ $(4^{-100}|0)$
 $(2_{011}|0)$ $(2_{01-1}|0)$ $(2_{101}|0)$ $(2_{10-1}|0)$ $(2_{110}|0)$
 $(2_{1-10}|0)$ $(3^{+111}|0)$ $(3^{-111}|0)$ $(3^{+11-1}|0)$ $(3^{-11-1}|0)$
 $(3^{+1-11}|0)$ $(3^{-1-11}|0)$ $(3^{+1-1-1}|0)$ $(3^{-1-1-1}|0)$ $(\bar{1}|0)$
 $(\bar{4}^{+001}|0)$ $(m_{001}|0)$ $(\bar{4}^{-001}|0)$ $(\bar{4}^{+010}|0)$ $(m_{010}|0)$
 $(\bar{4}^{-010}|0)$ $(\bar{4}^{+100}|0)$ $(m_{100}|0)$ $(\bar{4}^{-100}|0)$ $(m_{011}|0)$
 $(m_{01-1}|0)$ $(m_{101}|0)$ $(m_{10-1}|0)$ $(m_{110}|0)$ $(m_{1-10}|0)$
 $(\bar{3}^{+111}|0)$ $(\bar{3}^{-111}|0)$ $(\bar{3}^{+11-1}|0)$ $(\bar{3}^{-11-1}|0)$ $(\bar{3}^{+1-11}|0)$
 $(\bar{3}^{-1-11}|0)$ $(\bar{3}^{+1-1-1}|0)$ $(\bar{3}^{-1-1-1}|0)$ $(1|0)'$ $(4^{+001}|0)'$
 $(2_{001}|0)'$ $(4^{-001}|0)'$ $(4^{+010}|0)'$ $(2_{010}|0)'$ $(4^{-010}|0)'$
]

$(4^{+100}|0)'$	$(2_{100}|0)'$	$(4^{-100}|0)'$	$(2_{011}|0)'$	$(2_{01-1}|0)'$
$(2_{101}|0)'$	$(2_{10-1}|0)'$	$(2_{110}|0)'$	$(2_{1-10}|0)'$	$(3^{+111}|0)'$
$(3^{-111}|0)'$	$(3^{+11-1}|0)'$	$(3^{-11-1}|0)'$	$(3^{+1-11}|0)'$	$(3^{-1-11}|0)'$
$(3^{+1-1-1}|0)'$	$(3^{-1-1-1}|0)'$	$(\bar{1}|0)'$	$(\bar{4}^{+001}|0)'$	$(m_{001}|0)'$
$(\bar{4}^{-001}|0)'$	$(\bar{4}^{+010}|0)'$	$(m_{010}|0)'$	$(\bar{4}^{-010}|0)'$	$(\bar{4}^{+100}|0)'$
$(m_{100}|0)'$	$(\bar{4}^{-100}|0)'$	$(m_{011}|0)'$	$(m_{01-1}|0)'$	$(m_{101}|0)'$
$(m_{10-1}|0)'$	$(m_{110}|0)'$	$(m_{1-10}|0)'$	$(\bar{3}^{+111}|0)'$	$(\bar{3}^{-111}|0)'$
$(\bar{3}^{+11-1}|0)'$	$(\bar{3}^{-11-1}|0)'$	$(\bar{3}^{+1-11}|0)'$	$(\bar{3}^{-1-11}|0)'$	$(\bar{3}^{+1-1-1}|0)'$
$(\bar{3}^{-1-1-1}|0)'$				

Group 32.2.1.338 (Nonmagnetic spacetime group):

{(1 | n)}

$(1|0)$	$(4^{+001}|\frac{1}{2})$	$(2_{001}|0)$	$(4^{-001}|\frac{1}{2})$	$(4^{+010}|\frac{1}{2})$
$(2_{010}|0)$	$(4^{-010}|\frac{1}{2})$	$(4^{+100}|\frac{1}{2})$	$(2_{100}|0)$	$(4^{-100}|\frac{1}{2})$
$(2_{011}|\frac{1}{2})$	$(2_{01-1}|\frac{1}{2})$	$(2_{101}|\frac{1}{2})$	$(2_{10-1}|\frac{1}{2})$	$(2_{110}|\frac{1}{2})$
$(2_{1-10}|\frac{1}{2})$	$(3^{+111}|0)$	$(3^{-111}|0)$	$(3^{+11-1}|0)$	$(3^{-11-1}|0)$
$(3^{+1-11}|0)$	$(3^{-1-11}|0)$	$(3^{+1-1-1}|0)$	$(3^{-1-1-1}|0)$	$(\bar{1}|0)$
$(\bar{4}^{+001}|\frac{1}{2})$	$(m_{001}|0)$	$(\bar{4}^{-001}|\frac{1}{2})$	$(\bar{4}^{+010}|\frac{1}{2})$	$(m_{010}|0)$
$(\bar{4}^{-010}|\frac{1}{2})$	$(\bar{4}^{+100}|\frac{1}{2})$	$(m_{100}|0)$	$(\bar{4}^{-100}|\frac{1}{2})$	$(m_{011}|\frac{1}{2})$
$(m_{01-1}|\frac{1}{2})$	$(m_{101}|\frac{1}{2})$	$(m_{10-1}|\frac{1}{2})$	$(m_{110}|\frac{1}{2})$	$(m_{1-10}|\frac{1}{2})$
$(\bar{3}^{+111}|0)$	$(\bar{3}^{-111}|0)$	$(\bar{3}^{+11-1}|0)$	$(\bar{3}^{-11-1}|0)$	$(\bar{3}^{+1-11}|0)$
$(\bar{3}^{-1-11}|0)$	$(\bar{3}^{+1-1-1}|0)$	$(\bar{3}^{-1-1-1}|0)$		

Group 32.2.2.339 (Class 2

Group): {(1 | n)}

$(1|0)$	$(4^{+001}|\frac{1}{2})$	$(2_{001}|0)$	$(4^{-001}|\frac{1}{2})$	$(4^{+010}|\frac{1}{2})$
$(2_{010}|0)$	$(4^{-010}|\frac{1}{2})$	$(4^{+100}|\frac{1}{2})$	$(2_{100}|0)$	$(4^{-100}|\frac{1}{2})$
$(2_{011}|\frac{1}{2})$	$(2_{01-1}|\frac{1}{2})$	$(2_{101}|\frac{1}{2})$	$(2_{10-1}|\frac{1}{2})$	$(2_{110}|\frac{1}{2})$
$(2_{1-10}|\frac{1}{2})$	$(3^{+111}|0)$	$(3^{-111}|0)$	$(3^{+11-1}|0)$	$(3^{-11-1}|0)$
$(3^{+1-11}|0)$	$(3^{-1-11}|0)$	$(3^{+1-1-1}|0)$	$(3^{-1-1-1}|0)$	$(\bar{1}|0)$
$(\bar{4}^{+001}|\frac{1}{2})$	$(m_{001}|0)$	$(\bar{4}^{-001}|\frac{1}{2})$	$(\bar{4}^{+010}|\frac{1}{2})$	$(m_{010}|0)$
$(\bar{4}^{-010}|\frac{1}{2})$	$(\bar{4}^{+100}|\frac{1}{2})$	$(m_{100}|0)$	$(\bar{4}^{-100}|\frac{1}{2})$	$(m_{011}|\frac{1}{2})$
$(m_{01-1}|\frac{1}{2})$	$(m_{101}|\frac{1}{2})$	$(m_{10-1}|\frac{1}{2})$	$(m_{110}|\frac{1}{2})$	$(m_{1-10}|\frac{1}{2})$
$(\bar{3}^{+111}|0)$	$(\bar{3}^{-111}|0)$	$(\bar{3}^{+11-1}|0)$	$(\bar{3}^{-11-1}|0)$	$(\bar{3}^{+1-11}|0)$
$(\bar{3}^{-1-11}|0)$	$(\bar{3}^{+1-1-1}|0)$	$(\bar{3}^{-1-1-1}|0)$	$(1|0)'$	$(4^{+001}|\frac{1}{2})'$
$(2_{001}|0)'$	$(4^{-001}|\frac{1}{2})'$	$(4^{+010}|\frac{1}{2})'$	$(2_{010}|0)'$	$(4^{-010}|\frac{1}{2})'$
$(4^{+100}|\frac{1}{2})'$	$(2_{100}|0)'$	$(4^{-100}|\frac{1}{2})'$	$(2_{011}|\frac{1}{2})'$	$(2_{01-1}|\frac{1}{2})'$
$(2_{101}|\frac{1}{2})'$	$(2_{10-1}|\frac{1}{2})'$	$(2_{110}|\frac{1}{2})'$	$(2_{1-10}|\frac{1}{2})'$	$(3^{+111}|0)'$
$(3^{-111}|0)'$	$(3^{+11-1}|0)'$	$(3^{-11-1}|0)'$	$(3^{+1-11}|0)'$	$(3^{-1-11}|0)'$
$(3^{+1-1-1}|0)'$	$(3^{-1-1-1}|0)'$	$(\bar{1}|0)'$	$(\bar{4}^{+001}|\frac{1}{2})'$	$(m_{001}|0)'$
$(\bar{4}^{-001}|\frac{1}{2})'$	$(\bar{4}^{+010}|\frac{1}{2})'$	$(m_{010}|0)'$	$(\bar{4}^{-010}|\frac{1}{2})'$	$(\bar{4}^{+100}|\frac{1}{2})'$
$(m_{100}|0)'$	$(\bar{4}^{-100}|\frac{1}{2})'$	$(m_{011}|\frac{1}{2})'$	$(m_{01-1}|\frac{1}{2})'$	$(m_{101}|\frac{1}{2})'$
$(m_{10-1}|\frac{1}{2})'$	$(m_{110}|\frac{1}{2})'$	$(m_{1-10}|\frac{1}{2})'$	$(\bar{3}^{+111}|0)'$	$(\bar{3}^{-111}|0)'$
$(\bar{3}^{+11-1}|0)'$	$(\bar{3}^{-11-1}|0)'$	$(\bar{3}^{+1-11}|0)'$	$(\bar{3}^{-1-11}|0)'$	$(\bar{3}^{+1-1-1}|0)'$
$(\bar{3}^{-1-1-1}|0)'$				

Group 32.3.1.340 (Nonmagnetic spacetime group):

{(1 | n)}

$(1|0)$	$(4^{+001}|0)$	$(2_{001}|0)$	$(4^{-001}|0)$	$(4^{+010}|0)$
$(2_{010}|0)$	$(4^{-010}|0)$	$(4^{+100}|0)$	$(2_{100}|0)$	$(4^{-100}|0)$
$(2_{011}|0)$	$(2_{01-1}|0)$	$(2_{101}|0)$	$(2_{10-1}|0)$	$(2_{110}|0)$
$(2_{1-10}|0)$	$(3^{+111}|0)$	$(3^{-111}|0)$	$(3^{+11-1}|0)$	$(3^{-11-1}|0)$
$(3^{+1-11}|0)$	$(3^{-1-11}|0)$	$(3^{+1-1-1}|0)$	$(3^{-1-1-1}|0)$	$(\bar{1}|\frac{1}{2})$
$(\bar{4}^{+001}|\frac{1}{2})$	$(m_{001}|\frac{1}{2})$	$(\bar{4}^{-001}|\frac{1}{2})$	$(\bar{4}^{+010}|\frac{1}{2})$	$(m_{010}|\frac{1}{2})$
$(\bar{4}^{-010}|\frac{1}{2})$	$(\bar{4}^{+100}|\frac{1}{2})$	$(m_{100}|\frac{1}{2})$	$(\bar{4}^{-100}|\frac{1}{2})$	$(m_{011}|\frac{1}{2})$

$(m_{01-1} | \frac{1}{2})$	$(m_{101} | \frac{1}{2})$	$(m_{10-1} | \frac{1}{2})$	$(m_{110} | \frac{1}{2})$	$(m_{1-10} | \frac{1}{2})$
$(\bar{3}^{+111} | \frac{1}{2})$	$(\bar{3}^{-111} | \frac{1}{2})$	$(\bar{3}^{+11-1} | \frac{1}{2})$	$(\bar{3}^{-11-1} | \frac{1}{2})$	$(\bar{3}^{+1-11} | \frac{1}{2})$
$(\bar{3}^{-1-11} | \frac{1}{2})$	$(\bar{3}^{+1-1-1} | \frac{1}{2})$	$(\bar{3}^{-1-1-1} | \frac{1}{2})$		

Group 32.3.2.341 (Class 2
Group): $\{(1 | n)\}$

$(1 | 0)$	$(4^{+001} | 0)$	$(2_{001} | 0)$	$(4^{-001} | 0)$	$(4^{+010} | 0)$
$(2_{010} | 0)$	$(4^{-010} | 0)$	$(4^{+100} | 0)$	$(2_{100} | 0)$	$(4^{-100} | 0)$
$(2_{011} | 0)$	$(2_{01-1} | 0)$	$(2_{101} | 0)$	$(2_{10-1} | 0)$	$(2_{110} | 0)$
$(2_{1-10} | 0)$	$(3^{+111} | 0)$	$(3^{-111} | 0)$	$(3^{+11-1} | 0)$	$(3^{-11-1} | 0)$
$(3^{+1-11} | 0)$	$(3^{-1-11} | 0)$	$(3^{+1-1-1} | 0)$	$(3^{-1-1-1} | 0)$	$(\bar{1} | \frac{1}{2})$
$(\bar{4}^{+001} | \frac{1}{2})$	$(m_{001} | \frac{1}{2})$	$(\bar{4}^{-001} | \frac{1}{2})$	$(\bar{4}^{+010} | \frac{1}{2})$	$(m_{010} | \frac{1}{2})$
$(\bar{4}^{-010} | \frac{1}{2})$	$(\bar{4}^{+100} | \frac{1}{2})$	$(m_{100} | \frac{1}{2})$	$(\bar{4}^{-100} | \frac{1}{2})$	$(m_{011} | \frac{1}{2})$
$(m_{01-1} | \frac{1}{2})$	$(m_{101} | \frac{1}{2})$	$(m_{10-1} | \frac{1}{2})$	$(m_{110} | \frac{1}{2})$	$(m_{1-10} | \frac{1}{2})$
$(\bar{3}^{+111} | \frac{1}{2})$	$(\bar{3}^{-111} | \frac{1}{2})$	$(\bar{3}^{+11-1} | \frac{1}{2})$	$(\bar{3}^{-11-1} | \frac{1}{2})$	$(\bar{3}^{+1-11} | \frac{1}{2})$
$(\bar{3}^{-1-11} | \frac{1}{2})$	$(\bar{3}^{+1-1-1} | \frac{1}{2})$	$(\bar{3}^{-1-1-1} | \frac{1}{2})$	$(1 | 0)'$	$(4^{+001} | 0)'$
$(2_{001} | 0)'$	$(4^{-001} | 0)'$	$(4^{+010} | 0)'$	$(2_{010} | 0)'$	$(4^{-010} | 0)'$
$(4^{+100} | 0)'$	$(2_{100} | 0)'$	$(4^{-100} | 0)'$	$(2_{011} | 0)'$	$(2_{01-1} | 0)'$
$(2_{101} | 0)'$	$(2_{10-1} | 0)'$	$(2_{110} | 0)'$	$(2_{1-10} | 0)'$	$(3^{+111} | 0)'$
$(3^{-111} | 0)'$	$(3^{+11-1} | 0)'$	$(3^{-11-1} | 0)'$	$(3^{+1-11} | 0)'$	$(3^{-1-11} | 0)'$
$(3^{+1-1-1} | 0)'$	$(3^{-1-1-1} | 0)'$	$(\bar{1} | \frac{1}{2})'$	$(\bar{4}^{+001} | \frac{1}{2})'$	$(m_{001} | \frac{1}{2})'$
$(\bar{4}^{-001} | \frac{1}{2})'$	$(\bar{4}^{+010} | \frac{1}{2})'$	$(m_{010} | \frac{1}{2})'$	$(\bar{4}^{-010} | \frac{1}{2})'$	$(\bar{4}^{+100} | \frac{1}{2})'$
$(m_{100} | \frac{1}{2})'$	$(\bar{4}^{-100} | \frac{1}{2})'$	$(m_{011} | \frac{1}{2})'$	$(m_{01-1} | \frac{1}{2})'$	$(m_{101} | \frac{1}{2})'$
$(m_{10-1} | \frac{1}{2})'$	$(m_{110} | \frac{1}{2})'$	$(m_{1-10} | \frac{1}{2})'$	$(\bar{3}^{+111} | \frac{1}{2})'$	$(\bar{3}^{-111} | \frac{1}{2})'$
$(\bar{3}^{+11-1} | \frac{1}{2})'$	$(\bar{3}^{-11-1} | \frac{1}{2})'$	$(\bar{3}^{+1-11} | \frac{1}{2})'$	$(\bar{3}^{-1-11} | \frac{1}{2})'$	$(\bar{3}^{+1-1-1} | \frac{1}{2})'$
$(\bar{3}^{-1-1-1} | \frac{1}{2})'$				

Group 32.4.1.342 (Nonmagnetic spacetime group):
 $\{(1 | n)\}$

$(1 | 0)$	$(4^{+001} | \frac{1}{2})$	$(2_{001} | 0)$	$(4^{-001} | \frac{1}{2})$	$(4^{+010} | \frac{1}{2})$
$(2_{010} | 0)$	$(4^{-010} | \frac{1}{2})$	$(4^{+100} | \frac{1}{2})$	$(2_{100} | 0)$	$(4^{-100} | \frac{1}{2})$
$(2_{011} | \frac{1}{2})$	$(2_{01-1} | \frac{1}{2})$	$(2_{101} | \frac{1}{2})$	$(2_{10-1} | \frac{1}{2})$	$(2_{110} | \frac{1}{2})$
$(2_{1-10} | \frac{1}{2})$	$(3^{+111} | 0)$	$(3^{-111} | 0)$	$(3^{+11-1} | 0)$	$(3^{-11-1} | 0)$
$(3^{+1-11} | 0)$	$(3^{-1-11} | 0)$	$(3^{+1-1-1} | 0)$	$(3^{-1-1-1} | 0)$	$(\bar{1} | \frac{1}{2})$
$(\bar{4}^{+001} | 0)$	$(m_{001} | \frac{1}{2})$	$(\bar{4}^{-001} | 0)$	$(\bar{4}^{+010} | 0)$	$(m_{010} | \frac{1}{2})$
$(\bar{4}^{-010} | 0)$	$(\bar{4}^{+100} | 0)$	$(m_{100} | \frac{1}{2})$	$(\bar{4}^{-100} | 0)$	$(m_{011} | 0)$
$(m_{01-1} | 0)$	$(m_{101} | 0)$	$(m_{10-1} | 0)$	$(m_{110} | 0)$	$(m_{1-10} | 0)$
$(\bar{3}^{+111} | \frac{1}{2})$	$(\bar{3}^{-111} | \frac{1}{2})$	$(\bar{3}^{+11-1} | \frac{1}{2})$	$(\bar{3}^{-11-1} | \frac{1}{2})$	$(\bar{3}^{+1-11} | \frac{1}{2})$
$(\bar{3}^{-1-11} | \frac{1}{2})$	$(\bar{3}^{+1-1-1} | \frac{1}{2})$	$(\bar{3}^{-1-1-1} | \frac{1}{2})$		

Group 32.4.2.343 (Class 2
Group): $\{(1 | n)\}$

$(1 | 0)$	$(4^{+001} | \frac{1}{2})$	$(2_{001} | 0)$	$(4^{-001} | \frac{1}{2})$	$(4^{+010} | \frac{1}{2})$
$(2_{010} | 0)$	$(4^{-010} | \frac{1}{2})$	$(4^{+100} | \frac{1}{2})$	$(2_{100} | 0)$	$(4^{-100} | \frac{1}{2})$
$(2_{011} | \frac{1}{2})$	$(2_{01-1} | \frac{1}{2})$	$(2_{101} | \frac{1}{2})$	$(2_{10-1} | \frac{1}{2})$	$(2_{110} | \frac{1}{2})$
$(2_{1-10} | \frac{1}{2})$	$(3^{+111} | 0)$	$(3^{-111} | 0)$	$(3^{+11-1} | 0)$	$(3^{-11-1} | 0)$
$(3^{+1-11} | 0)$	$(3^{-1-11} | 0)$	$(3^{+1-1-1} | 0)$	$(3^{-1-1-1} | 0)$	$(\bar{1} | \frac{1}{2})$
$(\bar{4}^{+001} | 0)$	$(m_{001} | \frac{1}{2})$	$(\bar{4}^{-001} | 0)$	$(\bar{4}^{+010} | 0)$	$(m_{010} | \frac{1}{2})$
$(\bar{4}^{-010} | 0)$	$(\bar{4}^{+100} | 0)$	$(m_{100} | \frac{1}{2})$	$(\bar{4}^{-100} | 0)$	$(m_{011} | 0)$
$(m_{01-1} | 0)$	$(m_{101} | 0)$	$(m_{10-1} | 0)$	$(m_{110} | 0)$	$(m_{1-10} | 0)$
$(\bar{3}^{+111} | \frac{1}{2})$	$(\bar{3}^{-111} | \frac{1}{2})$	$(\bar{3}^{+11-1} | \frac{1}{2})$	$(\bar{3}^{-11-1} | \frac{1}{2})$	$(\bar{3}^{+1-11} | \frac{1}{2})$
$(\bar{3}^{-1-11} | \frac{1}{2})$	$(\bar{3}^{+1-1-1} | \frac{1}{2})$	$(\bar{3}^{-1-1-1} | \frac{1}{2})$	$(1 | 0)'$	$(4^{+001} | \frac{1}{2})'$
$(2_{001} | 0)'$	$(4^{-001} | \frac{1}{2})'$	$(4^{+010} | \frac{1}{2})'$	$(2_{010} | 0)'$	$(4^{-010} | \frac{1}{2})'$
$(4^{+100} | \frac{1}{2})'$	$(2_{100} | 0)'$	$(4^{-100} | \frac{1}{2})'$	$(2_{011} | \frac{1}{2})'$	$(2_{01-1} | \frac{1}{2})'$
$(2_{101} | \frac{1}{2})'$	$(2_{10-1} | \frac{1}{2})'$	$(2_{110} | \frac{1}{2})'$	$(2_{1-10} | \frac{1}{2})'$	$(3^{+111} | 0)'$
$(3^{-111} | 0)'$	$(3^{+11-1} | 0)'$	$(3^{-11-1} | 0)'$	$(3^{+1-11} | 0)'$	$(3^{-1-11} | 0)'$
$(3^{+1-1-1} | 0)'$	$(3^{-1-1-1} | 0)'$	$(\bar{1} | \frac{1}{2})'$	$(\bar{4}^{+001} | 0)'$	$(m_{001} | \frac{1}{2})'$

