

2.4. BRILLOUIN SCATTERING

Table 2.4.5.21. Trigonal Laue class R_1 : transverse modes, right-angle scattering

$$c_{66} = \frac{1}{2}(c_{11} - c_{12}); p_{66} = \frac{1}{2}(p_{11} - p_{12}).$$

\hat{Q}	\hat{u}	C	Scattering plane	e	e'	β
(0, 1, 0)	(1, 0, 0)	c_{66}	(100)	(1, 0, 0)	$(0, q_2^{(3)}, q_3^{(3)})$	$\{(n_3 q_2^{(3)})^2 + (n_1 q_3^{(3)})^2\} / n_1^4 n_3^4 c_{66} (n_2^2 q_2^{(3)} p_{66} + n_3^2 q_3^{(3)} p_{41})^2$
(0, 1, 0)	(1, 0, 0)	c_{66}	(001)	(0, 0, 1)	$(q_1^{(4)}, q_2^{(4)}, 0)$	$(q_1^{(4)} p_{41})^2 / c_{66}$
(0, 0, 1)	D	c_{44}	(010)	(0, 1, 0)	(0, 1, 0)	p_{14}^2 / c_{44}
(0, 0, 1)	D	c_{44}	(010)	(0, 1, 0)	$(q_1^{(5)}, 0, q_3^{(5)})$	$\{(n_3 q_1^{(5)})^2 + (n_1 q_3^{(5)})^2\} / n_1^4 n_3^4 c_{44} [n_1^4 (q_1^{(5)} p_{14})^2 + n_3^4 (q_3^{(5)} p_{44}')^2]$
(0, 1, 1)/ $\sqrt{2}$	(1, 0, 0)	$\frac{1}{2}(c_{44} + c_{66}) + c_{14}$	(100)	(1, 0, 0)	(0, 1, 0)	$(p_{66} + p_{14})^2 / 2C$
(0, -1, 1)/ $\sqrt{2}$	(1, 0, 0)	$\frac{1}{2}(c_{44} + c_{66}) - c_{14}$	(100)	(1, 0, 0)	(0, 1, 0)	$(p_{66} - p_{14})^2 / 2C$

Table 2.4.5.22. Trigonal Laue class R_2 : transverse modes, right-angle scattering

$$c_{66} = \frac{1}{2}(c_{11} - c_{12}); p_{66} = \frac{1}{2}(p_{11} - p_{12}).$$

\hat{Q}	\hat{u}	C	Scattering plane	e	e'	β
(0, 0, 1)	D	c_{44}	(010)	(0, 1, 0)	(0, 1, 0)	p_{14}^2 / c_{44}
(0, 0, 1)	D	c_{44}	(010)	(0, 1, 0)	$(q_1^{(5)}, 0, q_3^{(5)})$	$\{(n_3 q_1^{(5)})^2 + (n_1 q_3^{(5)})^2\} / n_1^4 n_3^4 c_{44} [n_1^4 (q_1^{(5)} p_{14})^2 + n_3^4 (q_3^{(5)} p_{44}')^2]$

Table 2.4.5.23. Particular directions of incident light used in Tables 2.4.5.17 to 2.4.5.22

$$\varepsilon_1 = (n_2 + n_3 - 2n_1)/4n_1, \varepsilon_2 = (n_1 + n_3 - 2n_2)/4n_2, \varepsilon_3 = (n_1 + n_2 - 2n_3)/4n_3.$$

Notation	q_1	q_2	q_3
$q^{(1)}$	$-2^{(-1/2)}(1 - \varepsilon_3)$	$2^{(-1/2)}(1 + \varepsilon_3)$	0
$q^{(2)}$	$-2^{(-1/2)}(1 - \varepsilon_2)$	0	$2^{(-1/2)}(1 + \varepsilon_2)$
$q^{(3)}$	0	$-2^{(-1/2)}(1 - \varepsilon_1)$	$2^{(-1/2)}(1 + \varepsilon_1)$
$q^{(4)}$	$2^{(-1/2)}(1 + \varepsilon_3)$	$-2^{(-1/2)}(1 - \varepsilon_3)$	0
$q^{(5)}$	$2^{(-1/2)}(1 + \varepsilon_2)$	0	$-2^{(-1/2)}(1 + \varepsilon_2)$
$q^{(6)}$	0	$2^{(-1/2)}(1 + \varepsilon_1)$	$-2^{(-1/2)}(1 - \varepsilon_1)$
$q^{(7)}$	$-2^{(-1/2)}(n_1 + n_3)(n_1^2 + n_3^2)^{(-1/2)}$	$2^{(-1/2)}(n_1 - n_3)(n_1^2 + n_3^2)^{(-1/2)}$	0
$q^{(8)}$	0	$-2^{(-1/2)}(n_1 + n_2)(n_1^2 + n_2^2)^{(-1/2)}$	$2^{(-1/2)}(n_2 - n_1)(n_1^2 + n_2^2)^{(-1/2)}$
$q^{(9)}$	$2^{(-1/2)}(n_3 - n_2)(n_2^2 + n_3^2)^{(-1/2)}$	0	$-2^{(-1/2)}(n_2 + n_3)(n_2^2 + n_3^2)^{(-1/2)}$
$q^{(10)}$	$-\frac{1}{2}(1 - \varepsilon_2)$	$-\frac{1}{2}(1 - \varepsilon_2)$	$2^{(-1/2)}(1 + \varepsilon_2)$

optical setup, the collection and acceptance angles of the instruments, spurious reflections and spurious interferences, etc. A full list is too long to be given here. However, when properly executed, interferometry is a fine tool, the performance of which is unequalled in its frequency range.

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