

Two-components order parameter in Sr_2RuO_4

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Free energy

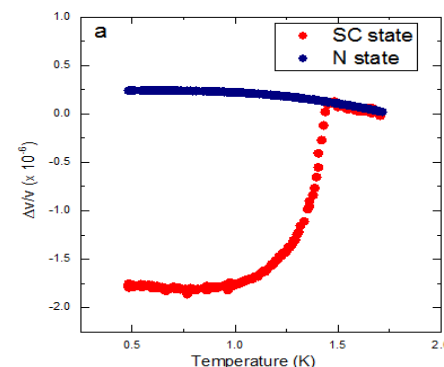
Strain order parameter coupling

Jump at T_c
in the transverse elastic constant

$$F = F_S + F_{el} + F_{cp}$$

$$F_{cp} = g \varepsilon_{\Gamma} |\psi|^2$$

$$c_{\mu\nu} = \frac{d^2 F}{d\varepsilon_{\nu} d\varepsilon_{\mu}}$$



Group theory

The symmetry of the order parameter

	E	2C ₄ (z)	C ₂	2C' ₂	2C'' ₂	i	2S ₄	σ _h	2σ _v	2σ _d	linears, rotations	quadratic
A _{1g}	1	1	1	1	1	1	1	1	1	1		x ² +y ² , z ²
A _{2g}	1	1	1	-1	-1	1	1	1	-1	-1	R _z	
B _{1g}	1	-1	1	1	-1	1	-1	1	1	-1		x ² -y ²
B _{2g}	1	-1	1	-1	1	1	-1	1	-1	1		xy
E _g	2	0	-2	0	0	2	0	-2	0	0	(R _x , R _y)	(xz, yz)
A _{1u}	1	1	1	1	1	-1	-1	-1	-1	-1		
A _{2u}	1	1	1	-1	-1	-1	-1	-1	1	1	z	
B _{1u}	1	-1	1	1	-1	-1	1	-1	-1	1		
B _{2u}	1	-1	1	-1	1	-1	1	-1	1	-1		
E _u	2	0	-2	0	0	-2	0	2	0	0	(x, y)	