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## Temperature dependence of the Cu(2) NQR line width in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-y</sub>

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### Abstract

Systematic measurements of the <sup>63</sup>Cu(2) NQR line width were performed in underdoped YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-y</sub> samples over the temperature range 4.2 K < T < 300 K. It was shown that the copper NQR line width monotonically increases with decreasing temperature in the below-critical region, resembling temperature behavior of the superconducting gap. The observed dependence is explained by the fact that the energy of a condensate of sliding charge-current states of the charge-density-wave type depends on the phase of order parameter. Calculations show that this dependence appears only at T < T<sub>c</sub>. Quantitative estimates of the line broadening at T < T<sub>c</sub> agree with the measurement results. © 2001 MAIK "Nauka/Interperiodica".

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