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The nature of the two energy scales in underdoped superconducting cuprates[1] ELENA BASCONES, BELEN VALENZUELA, Instituto de Ciencia de Materiales de Madrid (ICMM-CSIC) — Raman and ARPES experiments have demonstrated that in superconducting underdoped cuprates nodal and antinodal regions are characterized by two energy scales instead of the one expected in BCS. Using the Yang, Rice and Zhang (YRZ) model, in which pseudogap and superconductivity compete below a critical doping, we find that the antinodal Raman pair-breaking peak shifts to higher frequency with underdoping, follows the antinodal ARPES gap and is closely connected with the pseudogap. Its intensity decreases due to the competition between pseudogap and superconductivity. The nodal scale follows the doping dependence of the superconducting order parameter (cond-mat/0611154).

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