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Impact of the Spin Density Wave Order on the Superconducting Gap of $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$ LUDIVINE CHAUVIERE, YANN GALLAIS, MAXIMILIEN CAZAYOUS, MARIE-AUDE MEASSON, ALAIN SACUTO, Laboratoire Materiaux et Phenomenes Quantiques UMR 7162 CNRS Universite Paris Diderot, Paris, France, DOROTHEE COLSON, ANNE FORGET, CEA Saclay IRAMIS, SPEC CNRS URA 2464, Gif-sur-Yvette, France, SQUAP TEAM, SPEC COLLABORATION — We report a doping dependent electronic Raman scattering measurements on iron-pnictide superconductor $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$ single crystals. The B_{2g} Raman spectrum at optimal doping is consistent with a strongly anisotropic gap on the electron pocket. Upon entering the coexistence region between superconducting (SC) and spin-density-wave (SDW) orders, the effective pairing energy scale is strongly reduced. Our results are interpreted in terms of a competition between SC and SDW orders for electronic states at the Fermi level. Our findings advocate for a strong connection between the SC and SDW gaps anisotropies which are both linked to interband interactions.

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