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Evidence for nodeless gap in superconducting Nd1.85Ce0.15CuO4-y: LEI SHAN, YAN HUANG, SHILIANG LI, PENGCHENG DAI, FANG ZHOU, JIWU XIONG, WENXIN TI, HAI-HU WEN, NATIONAL LAB FOR SUPERCONDUCTIVITY, INSTITUTE OF PHYSICS, CHINESE ACADEMY OF SCIENCES TEAM, DEPARTMENT OF PHYSICS, UNIVERSITY OF TENNESSEE TEAM — The pairing symmetry in a single crystal of $Nd_{1.85}Ce_{0.15}CuO_{4-y}$ is studied by measuring the point-contact spectroscopy along nodal and anti-nodal directions. For comparison the same measurements on a hole-doped cuprate single crystal of $La_{1.89}Sr_{0.11}CuO_4$ is also presented. A nearly identical spectrum is obtained in $Nd_{1.85}Ce_{0.15}CuO_{4-y}$ for both directions along Cu-O bond and Cu-Cu bond and no any zero bias conductance peak is observed. This is in contrast to the results of $La_{1.89}Sr_{0.11}CuO_4$, in which an angular dependent spectrum is observed with a remarkable zero bias conductance peak in the nodal direction. Our results support an s-wave like symmetry in optimally electron-doped cuprate $Nd_{1.85}Ce_{0.15}CuO_{4-y}$ other than the d-wave dominant symmetry as demonstrated in hole-doped cuprates.

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