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Superconducting interface in cuprate p-n heterostructures¹ MAXIME DION, LAURENT OLIVIER, GUILLAUME HARDY, SÉBASTIEN GODIN-PROULX, PATRICK FOURNIER, Université de Sherbrooke — In this explorative work, we combined two kinds of non-superconducting cuprates: overdoped $Pr_{2-x}Ce_xCuO_4$ and under-doped $La_{2-x}Sr_xCuO_4$ in the same p-n heterostructures in order to generate new behaviors through the interplay between the two materials. We will show that a thin superconducting layer (< 10 nm) arise at the interface between these two compounds. We will discuss its actual location, its unexpected occurrence and its origin which is partly compatible with a charge transfer scenario that takes place in similar p-p cuprate heterostructures [1,2].

- [1] A. Gozar et al., Nature 456, 782 (2008)
- [2] G. Logvenov et al., Science 326, 699 (2009)

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