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A NEW SUPERCONDUCTING MATERIAL IN A Y–Ba–Cu–O AND Bi–Ca–Sr–Cu–O MIXED SYSTEM

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A new superconducting phase has been found in a mixed system prepared from the $YBa_2Cu_3O_{7-\delta}$ and $Bi_2CaSr_2Cu_2O_{9-\delta}$ high-T_c materials. The new compound shows an onset of resistivity transition at ~100 K and zero resistivity below ~50 K. Powder X-ray diffraction pattern of the new compound differs completely from those of $YBa_2Cu_3O_{7-\delta}$ and $Bi_2CaSr_2Cu_2O_{9-\delta}$. The materials prepared using a mixture of the oxides and carbonates with identical cation stoichiometric ratios, on the other hand, does not exhibit superconductivity.