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Crystal Structure and Superconductivity of $FeSr_2(Y,Nd)(Cu,Zn)_2O_{6+\delta}$ WUERNISHA TUERXUN, International Center for Materials Nanoarchitechtonics (MANA), National Institute for Materials Science (NIMS), Japan, TAKASHI MOCHIKU, Superconducting Materials Center, NIMS, YOSHIAKI HATA, Department of Applied Physics, National Defense Academy, AKINORI HOSHIKAWA, Ibaraki University, YOSHITAKA MATSUSHITA, Quantum Beam Center, NIMS, HIROKI FUJII, Superconducting Materials Center, NIMS, HIROSHI YASUOKA, Department of Applied Physics, National Defense Academy, HIDEAKI KITAZAWA, (1) Quantum Beam Center, (2) MANA, NIMS — We have prepared the polycrystalline samples of $FeSr_2Y_{0.75}Nd_{0.25}(Cu_{1-x}Zn_x)_2O_{6+\delta}$ solid solution system (x = 0, 0.01, 0.02, 0.05) to investigate the Zn substitution effects. The DC magnetization measurement results showing the samples exhibited decreasing in T_c while increasing the Zn content, x, and the superconductivity was disappeared around x = 0.05. Crystal structure has been analyzed by using X-ray and neutron powder diffraction data. The relation between the superconductivity and crystal structure is discussed based on the experimental results.

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