Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Phase diagram and oxygen annealing effect of FeTe1-xSex iron-based superconductor YASUNA KAWASAKI, KEITA DEGUCHI, SATOSHI DEMURA, HIROYUKI OKAZAKI, TOSHINORI OZAKI, TAKAHIDE YAMAGUCHI, HIROYUKI TAKEYA, YOSHIHIKO TAKANO, National Institute for Materials Science — Phase diagrams of as-grown and O_2-annealed $FeTe_{1-x}Se_x$ decided by magnetic susceptibility measurement were obtained. For as-grown samples, the antiferromagnetic order was fully suppressed in the region of $x \geq 0.15$ and superconductivity appeared at $x \geq 0.1$. However, bulk superconductivity emerged at only $x = 0.5$. Interestingly, for O_2-annealed samples, complete suppression of the magnetic order and bulk superconductivity was observed at $x \geq 0.1$. We found that O_2 annealing induces the bulk superconductivity for $FeTe_{1-x}Se_x$. The O_2 probably play a key role of a suppression of the magnetic order and appearance of bulk superconductivity.

Yasuna Kawasaki
National Institute for Materials Science

Date submitted: 27 Nov 2011 Electronic form version 1.4