About sample request [Ref.7(b): 2nd paragraph of the right column in p.1]

We have reported a systematic study of SWNT bundles using the pulsed laser vaporization technique, in which the *B* doping concentration (N_B) is controlled by the amount of elemental *B* mixed into a Co/Ni catalyst impregnated targets [15]. Evidence for substitutional *B* doping and enhanced electronic DOS at the E_F has been reported previously [*15-17*].

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Other supplementary information; http://people.clemson.edu/~arao/pub_08.html

About agreement of T_c = ~12 K [Ref.7 and 7(b): 1st paragraph of the right column in p.2]

"The T_c = 12K" is also in good agreement with that in C_6Ca [1, 2]. Moreover, Ishii et al. (NIMS, Japan) have recently reported a resistance drop at T_c = 12K in a FET using an isolated *B*-MWNT as the current channel. Hence, it can be a "Magic Number". Very recently, we have revealed by NMR that the MWNTs in Ref.[7] contain *B* with N_B = ~2 at.%, which was intentionally used only for activation of electro-chemical reaction of Fe and Co catalyst [11]. Thus, the common T_c = 12K implies presence of common origins for ensemble of *B*-CNTs (e.g., the best alignment of E_F to a VHS under this N_B value). In contrast, because C_6Ca has a different electronic structure (e.g., difference in sp^2 and sp^3 orbitals), the agreement of T_c may be occasional.

About preparing of thin films of B-SWNTs [Ref.7b: 2nd paragraph of the right column in p.3]

Thin film samples of *B*-SWNTs were prepared by solubilizing the *B*-SWNTs in 5 mg/mL dichloroethane. Then, the solution was centrifuged for long time (e.g., 48 h by Tomy, low-speed centrifuge), and ultrasonication (As One, US cleaner) was carried out also for long time (e.g., 80 h) in order to purify the SWNTs and sufficiently separate the bundles into individual *B*-SWNTs. Next, the solution was spin-coated at 500 rpm on a Si substrate to produce a highly homogeneous film consisting of assembled *B*-SWNTs (Fig. 2(b)). Finally, the thin films were annealed at 1600 °C for 1 h in order to entirely remove the residual catalyst (if the centrifuge and ultrasonication are sufficient, this annealing might not be needed, depending on samples).

About parasitic diamagnetism [Ref.7b: 1st paragraph of the right column in p.2 and Fig.5]

Graphite diamagnetism in ensemble of SWNTs very gradually appears in *M-T* curves from high temperatures (e.g., > 50K) even in undoped samples and the amplitude does not decrease in *M- H* features even at high magnetic fields (e.g., > 2000 Oe). They are very different from those in Meissner effect for type II superconductors observed here. However, because the component is very small as the back ground (i.e., gradual decrease in magnetization at T > 12K in Fig.3) in the samples shown here and different by respective samples, we could not entirely delete it in this study.

About alignment of E_F to a VHS [Ref.7b: last paragraph of the left column in p.4]

Because we have measured SWNTs with $N_B \geq 1.5$ at.%. in the present experiment, N_B = 1.5 at.% is the lowest value and, hence, it is qualitatively consistent with the theory. In SWNTs with $N_B \leq 1$ at.%, one can expect higher T_c (when E_F does not locate in band gap existing at $N_B \approx 0$), although the present result may correspond to such a case because actual boron concentration in the SWNTs should be lower than 1.5 at.%. In contrast, although larger N_B can theoretically align E_F to higher-order VHSs, destruction of SWNTs as shown in Fig.1(a) makes it impossible.

Moreover, one can make quantitative difference of the results from the theory clear in such measurements, because the present theory did not take into consideration influence of "ensemble" of

B-SWNTs, while “ensemble” is the important factors for the present Meissner effect as well as lower N_B. Density of states in a VHS are averaged and become ambiguous by assembling SWNTs, resulting in decreasing in the magnitude and, thus, T_c.

If the SWNTs are undoped, the difference in chirality (i.e., semiconducting/metallic behaviors) of the respective SWNTs is important for producing SC. Only the metallic SWNTs should exhibit SC, if the origin follows BCS theory. However, in the case of carrier-doped SWNTs, SC is no longer sensitive to chirality, because one can freely control the position of E_F by carrier doping level. In fact, E_F can locate near to the second VHS due to *B* doping in Fig.6, resulting in SC, nevertheless a band gap exists. Assembly of SWNTs with various chiralities induces this tendency.

About correlation between one SWNT and its assembly [Ref.7b: 2nd paragraph of the right column in p.4]

Homogeneously assembled *B*-CNTs can provide weakly interacted CNTs (i.e., quasi-1D property), which can maintain both the 1D properties (e.g., contribution of a VHS and strong curvature in one SWNT) and the 3D properties (e.g., Meissner shielding-current path across assembled SWNTs). It should be different from bundles or ropes of SWNTs, which have strong interaction due to mostly commensurate carbon atoms between neighboring SWNTs. Thus, the present SC and T_c may be enhanced by applying high pressure to the thin films and also by using smaller-diameter SWNTs (< 1nm).