※概要（Summary）：

Single walled carbon nanotubes (SWNT) exhibit photoluminescence (PL) when excited. To observe the PL, measuring micelle wrapped SWNT is in common use. A disadvantage of this method is the impossibility to determine the optical properties of a certain SWNT. This problem can be solved by using air-suspended SWNT on silicon chips in combination with a computer aided laser system. By using this approach, it is feasible to determine the influence of parameters on the optical properties of specific SWNT. To tailor these properties, is the ambition of the performed experiments on doping SWNT with nitrogen, as the optical properties are strongly dependent on the structure of the SWNT. The results of Raman spectroscopy and PL measurements suggest that it is possible to influence the SWNT structure by doping with nitrogen.

※実験（Experimental）：

高速大面積電子線描画装置

マスク・ウェーハ自動現像装置群

シリコン深掘りエッチング装置

形状・膜厚・電気・機械特性評価装置群

クリーンドラフト潤沢超純水付

ステルスダイサー　were used for sample preparation.

※結果と考察（Results and Discussion）：

　The results of the PL measurements are plotted in a PL map in Fig. 1, with excitation wavelength on the y-axis and emission wavelength on the
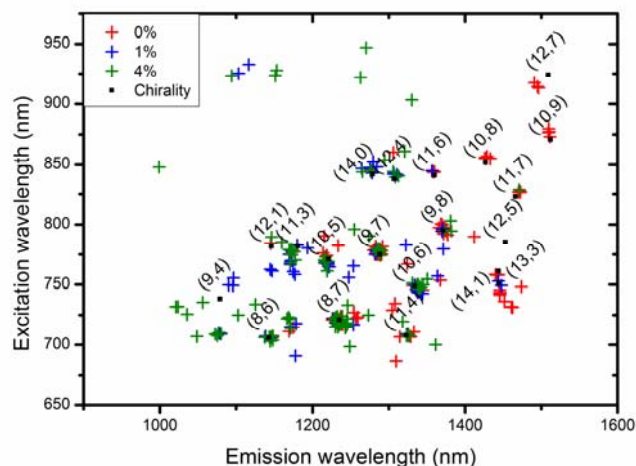

Fig. 1　PL map of all measured SWNTs.

x-axis. The influence of doping level can be observed again, as the non-doped SWNT (red) predominantly occur with higher chiral vectors than the 1 wt% (blue) and 4 wt% (green) doped SWNTs. In general the PL peaks fit well with the chirality map. But there are exceptions. There are some data points at circa 920 nm excitation wavelength that cannot be assigned to any chirality. A second irregularity is the cluster of data points that seems red shifted from the (8,6)-chirality.

共同研究者等（Coauthor）：

Susanne Mosler, Freiberg University of Mining and Technology

石井晃博, Theerapol Thurakitseree, 丸山茂夫,千足昇平、東京大学工学系研究科

論文・学会発表

　（Publication/Presentation）：

なし

関連特許（Patent）：

なし