

# First metamorphic diamonds? from Nishisonogi metamorphic belt, Kyushu, Japan

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2019.5.17 (Fri.)

Meeting Room #486, Science  
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Non-kimberlitic diamonds have been reported from orogenic belts produced by continental collision such as in ultra-high-pressure metamorphic rocks (e.g. Kokchetav, Kazakhstan) and in ophiolites (e.g. Tibet and Polar Urals, Russia). Recently, diamond-like carbon materials have been identified in Higo- and Nishisonogi metamorphic rocks in Kyusyu, Japan by micro-Raman spectroscopy (Nishiyama et al., 2014). Since then, we have been making efforts to characterize the morphology/microtexture and crystallographic features of such carbon materials through direct observation by electron microscopy. As the results, two types of diamonds were identified in Nishisonogi metamorphic rocks. In the first case, diamond occurs as single crystalline grains of  $\sim 0.6 \mu\text{m}$  mostly in the cavities of pelitic schist composed mainly of phengite and quartz (pseudomorph? after coecite). In the second case, diamond occurs as a dense polycrystalline aggregate ( $1-3 \mu\text{m}$ ) composed of  $<10-20 \text{ nm}$  grains accompanied by lonsdaleite, so called hexagonal diamond in pseudotachylyte in carbonaceous schist. The microtexture is well comparable to nano-polycrystalline diamond synthesized by direct conversion from graphite under HPHT. We will present the detailed occurrence and characteristics of these diamonds and discuss whether they are really intrinsic or not.