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[Special Interview]

from SENDAI *to* the WORLD



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[Feature article]

How to Make Zigzag Graphene Nanoribbons

Aiming for the Practical Application of the Electronics
Material Graphene in the Future

[AIMR in the world]

Tomasz Dietl

Background of the paper
with 5,000 citations

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Although it isn't necessarily a research subject at AIMR, I would like to write about cement, which I used to research. There's various types of cement out there, but the type that probably comes to your mind is the gray powder variety which is used to make mortar and concrete. The gray cement that we know of was invented by Joseph Aspdin about 200 years ago, and is categorized as Portland cement. It was named for its color and texture, which resembles those of Portland stone (a kind of limestone) originating from the Isle of Portland in England. What other types of cement are out there besides Portland cement? There's dental cement, as well as alumina cement; the latter is used in refractory applications. There's also white cement (colored cement can be made by adding coloring) though it is of Portland cement.

Let's look more closely at Portland cement. Its main ingredients are limestone (CaCO_3) and clay (made up principally of SiO_2 and Al_2O_3), but materials such as silica stone and iron oxide materials are also used to make up for a lack in SiO_2 and Fe_2O_3 respectively. These are crushed into powder form and mixed well, and heated gradually. Those who have ever gone to a cement factory will recall a tall tower (suspension preheater) used for preliminary heating of raw materials, and a rotary kil



Susumu Ikeda

Born in Saitama in 1967, Ikeda graduated from Tohoku University's Faculty of Science in 1990. After working at a cement company, he received his Ph.D. degree from the Graduate School of Science, the University of Tokyo. He became an Assistant Professor at the Graduate School of Frontier Sciences at the same university, and then moved on to become an Assistant Professor at AIMR. In 2010, he was appointed Associate Professor, and in 2011, took on a second position as the Deputy Administrative Director (for Research).

