Earth's core revealed by ultrahigh-pressure experiments

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The interior of the Earth is under high pressure and high temperature. The condition at the center of the Earth is 364 gigapascals and about 5000 kelvins. Such extreme condition can be generated in a laser-heated diamond-anvil cell (DAC). Any materials existing inside our planet can be synthesized using this technique.

I will discuss the formation and evolution of the Earth’s core on the basis of recent DAC experimental results. Our recent work has shown that the core composition has changed to a large extent since its formation by exsolving oxide and silicates. Such core-derived oxide and silicates may have caused “anomalies” presently observed in the deep mantle and core.

I will introduce the latest works on core formation and evolution as well as ultrahigh-pressure experimental techniques using a DAC.

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