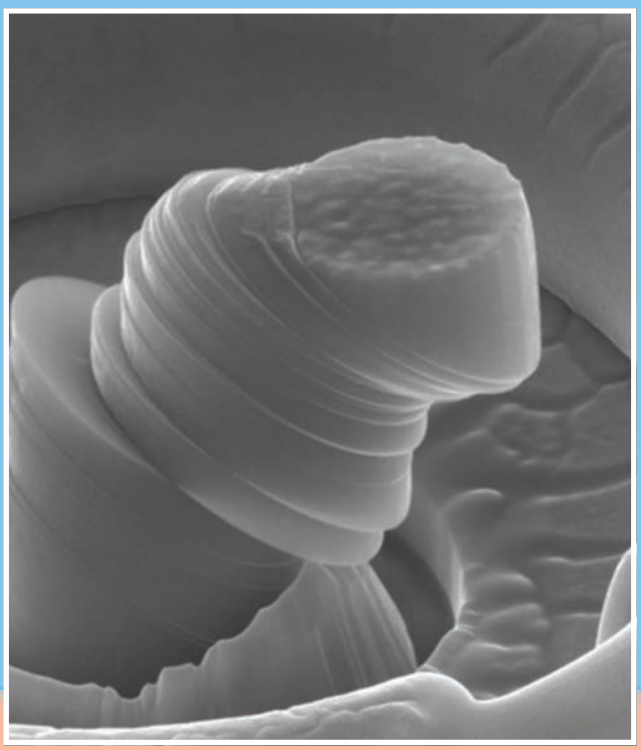
The strong new metal made of Magnesium with Silicon Carbide nanoparticles
Image credit: UCLA Scifacturing Laboratory

New Strong and Lightweight Super Metal

A team led by researchers from the UCLA (University of California Los Angeles) Henry Samueli School of Engineering and Applied Science has created a super-strong yet light structural metal with extremely high specific strength and modulus, or stiffness-to-weight ratio. The new metal is composed of magnesium infused with a dense and even dispersal of ceramic silicon carbide nanoparticles. The new material could be used to make lighter airplanes, spacecraft, and cars, helping to improve fuel efficiency, as well as in mobile electronics and biomedical devices.

The scientists have found an innovative method to create the super-strong but lightweight metal. Magnesium, at just two-thirds the density of aluminium, is the lightest structural metal. Silicon carbide is an ultra-hard ceramic commonly used in industrial cutting blades. The researchers' technique of infusing a large number of silicon carbide particles smaller than 100 nanometers into magnesium added significant strength, stiffness, plasticity and durability under high temperatures. The new metal (technically called a metal nanocomposite) is about 14 percent silicon carbide nanoparticles and 86 percent magnesium. The research was published in the journal Nature.

Source: www.sciencedaily.com



Right: A deformed sample of pure metal
Image credit: UCLA Scifacturing Laboratory