A researcher racing for results

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Yuntian Zhu of DOE's Los Alamos National Laboratory's may have started late in the race to develop ultra-long carbon nanotubes, but he is now on the fast track to success.

Scientists have been chasing the fabrication of long carbon nanotubes for more than a decade — far longer than the two years Zhu has devoted to the project. Although their diameter is roughly one-ten-thousandth that of a human hair, carbon nanotubes are 100 times stronger than steel. Undeterred by the complexity of the challenge and his colleagues' extensive knowledge and wealth of experience in the field, Zhu entered the field confident that he and his teammates could catch up quickly.

Last year, Zhu demonstrated his expertise in the topic when he announced the creation of a world record-length, four-centimeter-long carbon nanotube developed in collaboration with chemists from Duke University.

Zhu got to the head of the pack not by following the lead of others, but by going in his own direction. "I tend to think 'Can I solve this issue with a new approach instead of approaches others have tried, but failed?' I don't want to follow anyone," Zhu said.

Beginning with nothing but his desire to understand the challenge of growing long nanotubes, he read all he could find on the topic to make sure his wasn't just a crazy idea. He also held brainstorming sessions with his fellow researchers and secured funding to pay for his work.

In May 2005, the invention was recognized as one of the top 50 technologies moving nanotechnology into mainstream markets as a winner in Nanotech Briefs magazine's first-ever Nano 50 competition. Currently, funding is being arranged to commercialize the invention, but the race is far from over. Zhu's team's next task is to develop ways to entwine the nanotubes into longer strands.

Source: DOE Pulse, Los Alamos National Laboratory