Withstanding high temperatures is an important requirement for any material meant to build the world's next super planes. However, Ke clarified that the material has to be able to maintain both structural and mechanical properties in an oxygen environment.

"We weren't testing this material in a vacuum, like what you would experience in space. Materials can withstand much higher temperatures in space. We wanted to see if BNNTs could hold up in the type of environment an average fighter jet or commercial plane would experience," he said.

While the study has brought new light to the strength and stability of BNNTs, their use on planes may not be a reality for another five to 10 years.

"Right now, BNNTs cost about $1,000 per gram. It would be impractical to use a product that expensive," said Ke.

But, that does not mean it will never happen. Carbon nanotubes were about the same price 20 years ago. As more studies indicated the usefulness of carbon nanotubes, the production rates increased and prices went down to the current rate, between $10 and $20 per gram. Ke sees the same fate coming down the line for BNNTs.

Ke plans to continue this type of research on BNNTs. He has worked with the U.S. Air Force on several research projects and in 2010 was chosen for the U.S. Air Force's Young Investigator Research Program, a prestigious program with fewer than 20 percent of applicants accepted. While the advances of BNNTs will probably be used first in fighter jets, Ke said he can see this type of technology trickling down to commercial flights.

Source: Binghamton University