

## Top Trends in Aeronautic Structures

When you consider that we only started flying just over a century ago, aeronautic structures have had quite a track record for great strides. So what's trending in this exciting area now?

Kurt Maute, Director of the Center for Aerospace Structures at UC-Boulder, fills us in.

“The real advancement in aeronautics would be composites like the 787 Boeing and Airbus 350,” Maute assesses. “It's incredible that we are at a point where we feel comfortable to manufacture them in large scale. We've seen a synthesis and are also at a point where we feel comfortable to fix their behavior on loading conditions... There's been weight saving and fuel saving.”

For the latter, he sees two vital competitors. “One is the engine technology and it lives very strongly from advancement in high temperature (materials), not just aircraft engines but for energy production for generation,” he says. “But we don't know which has more bang for your buck. Will it come from structural composites like lightweight metals or will it be the engine technology?”

For the mobile world, Maute says, it's looking to increase into composite materials and facilitate research but their main concern is less on the basic material side and more on the *handling* of material. Composite lay-up or tight curvatures like this are more challenging than putting it on the fuselage, he says. “We will see advancement in the manufacturing process, how to automate and how to make composite materials more benign for realizing geometrically complex parts.”

And what Maute sees overall is nothing short of encouraging. “Academia was surprised by Boeing's move to build an almost completely composite aircraft and it's very encouraging in terms of stimulating further focus in this area,” he says. “It's also a positive that two major aircraft companies haven't agreed on what is the right concept. Airbus has not completely bought into Boeing's composite and is still going with its advanced metal concept. What's the right answer? Who will prevail? There's an unknown and we'll all benefit from the answer.”