

...accelerating the adoption of advanced materials and manufacturing methods in the quest for more capable and more affordable systems...

My name is Mick Maher, and I have been a program manager in DARPA's Defense Sciences Office for almost five years, managing a portfolio focused on materials and manufacturing technologies. I have a full plate of existing programs that I would like to tell you about, so that you have a sense of what I am trying to accomplish and how I execute my programs. In addition, I would like to tell you about some new areas that I am actively seeking new ideas.

The first and the largest program in the portfolio is the Open Manufacturing program. The program objective was looking to come up with solutions that could improve the confidence in new manufacturing technologies so that they could be more readily adopted. We used bonded composites and additive manufacturing as our exemplars. The program has produced a framework based on manufacturing informatics and probabilistic process models that now enables rapid qualification of new manufacturing technologies. It has already shown that the time and cost required to qualify can be reduced by 40 and 20% respectively.

Another framework based program is the Materials Development for Platforms program. The program is looking to increase the adoption of new material technologies by designers by reducing the development time from 10 years to three. The key here is to assist material developers by providing a framework that creates a simulated platform environment and links the computational tools that are utilized by both material and platform developers. In this case we have chosen a hypersonic vehicle as our exemplar.

My most recent program, Tailorable Feedstock and Forming, looks to completely revolutionize the way components are fabricated for the aerospace and defense sectors by creating a new composite material format that will provide platforms a material that can be tailored to provide optimal performance at the same time be formed into a component at the price of aluminum. Based on this portfolio, I am still looking for new ideas in the following two areas: First, new metrology techniques for combined environment testing; second, new in-line and final inspection methodologies for short-fiber-based composite materials and the components made from these materials.

Thank you for your interest, and I look forward to talking to you.