PROTECTION - SCIENCE AND TECHNOLOGY ADVANCES FOR CHEMICAL AND BIOLOGICAL PROTECTION

Utilizing Advanced Manufacturing Technologies To Enhance Legacy Production Techniques For Next Generation Personal Protective Equipment

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Additive manufacturing (AM) promises significant leaps in our ability to produce incredible new products with shapes, configurations, and material systems we previously could not achieve using legacy manufacturing techniques such as injection molding. Unfortunately, the unique demands of CBRN protection have slowed wide adoption of AM technologies for personal protective equipment. Since this field deals in lifesaving equipment, new technology often receives a significant degree of scrutiny. The testing and validation of AM processes and materials is an important consideration but does not need to slow the use of AM to enhance the PPE product space. The DEVCOM Chemical Biological Center's additive manufacturing strategy considers adoption of the technology as a primary manufacturing method and as a technology enabler, bridging gaps and enhancing the utility of legacy manufacturing. This talk will cover the use of AM and AM-adjacent technologies to enhance PPE research. This includes use of polymer molds to rapidly prototype new form factors, use of new modeling software and computational fluid dynamics to predict behavior in printed parts, and utilization of learning tools to facilitate characterization of PPE and provide better fit and performance.

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