

Laser Shock Peening for Aircraft Structures – An overview of the activities at the Air Force Research laboratory at Wright-Patterson Air Force Base

Although laser peening offers a viable option for extending the fatigue life of aircraft structural components, developing and verifying peening schemes to address specific lifing goals for specific components is currently an expensive and time-consuming process. To address this shortfall, the Air Force Research Laboratory is developing a suite of validated modeling tools for virtual design of laser peening solutions. When complete, these tools will enable end-to-end design of optimal peening treatments for specified fatigue requirements, with a significantly decreased reliance on costly testing. In this seminar, we introduce the concept of laser peening for aircraft structures, and share a work-in-progress snapshot of our tool development activities.