

# MRS BULLETIN

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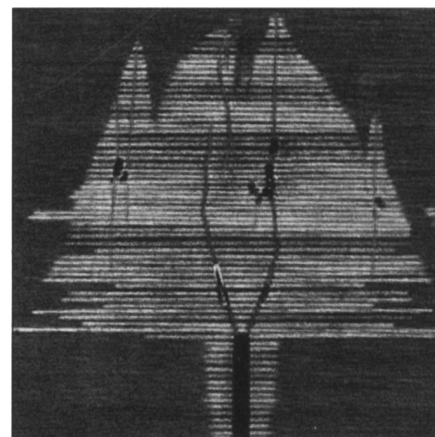
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**ON THE COVER:** An ultrasonic image, based on time-domain scanning acoustic microscopy, of a single-edged, diamond-saw-notch, four-ply, unidirectional, SiC (SCS-6) fiber-reinforced titanium (Ti-15Mo-3Nb-3Al-0.2Si wt%) matrix-composite specimen. The specimen was subjected to  $10^4$  thermomechanical cycles over 36 days. The image indicates that two matrix cracks initiated from the corners of the diamond-saw notch and propagated perpendicular to the fibers and load direction. Further, the ultrasonic image shows the extent of interface oxidation, which has a characteristic mushroom shape. The image shows that the damage occurs after the matrix crack progresses past an unbroken fiber and exposes the interface to environmental attack. The thermomechanical-fatigue test as well as the development of the ultrasonic-characterization technique were performed at the Air Force Materials Directorate, Wright Laboratory, Wright-Patterson Air Force Base, Ohio. For more about this topic, see "Ultrasonic Characterization of Surfaces and Interfaces" by Stanislav I. Rokhlin and Theodore E. Matikas on p. 22.

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### Materials Research Society

9800 McKnight Road  
Pittsburgh, PA 15237-6006  
Tel. (412) 367-3003; Fax (412) 367-4373  
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