Measuring the bond strength of thin coatings
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The group made use of an underwater explosion bonding method developed by one of its members—Kumamoto University's Kazuyuki Hokamoto—to coat a 0.2mm-thick tungsten foil onto ferritic steel. From there, the researchers prepared micrometer-size compressive specimens using FIB. These were then examined by micro shear compression tests to obtain load-displacement curves. When the shear deformation was reduced to 1 ?m², the shear strength was higher than that of the tungsten coating.

"Our results show the ultra-small specimen's successful measurement of the brittle-tungsten's real interfacial shear strength and steel joint," said Kasada."We hope that USTTs can be applied to measure the bonding strength of various coating materials, contributing to the safe application of multi-material technology used in industrial components."


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