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Chao He, Yongjie Liu, Jiangfeng Dong, Qingyuan Wang, Daniele Wagner, Claude Bathias

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Through thickness property variations in friction stir welded AA6061 joint fatigued in very high cycle fatigue regime

Chao HE^{a, c}, Yongjie LIU^b, Jiangfeng DONG^a, Qingyuan WANG^{a*}, Daniele
WAGNER^c, Claude BATHIAS^c

^aKey Laboratory of Energy Engineering Safety and Disaster Mechanics, Ministry of Education, Sichuan University, Chengdu 610065, PR China

^b Failure Mechanics and Engineering Disaster Prevention and Mitigation Key Laboratory of Sichuan Province, College of Architecture and Environment, Sichuan University, Chengdu, 610065, PR China

^c University Paris Ouest Nanterre, LEME Laboratory, 50 Rue de Sèvres, 92410 Ville D'Avray, France

*Corresponding author: Qingyuan WANG

Fax: +86 02885406919 Phone: +86 02885406919

E-mail: wangqy@scu.edu.cn

Abstract: Ultrasonic fatigue tests were performed on friction stir welded AA6061 joint to investigate very high cycle fatigue (VHCF) behaviors. As a result, almost all the fatigue cracks are initiated from local plastic slip markings around the boundary between thermo-mechanically affected zone and heat affected zone. The fatigue strength decreases from the top to root of the welded joint, owing to the variation of plastic deformation history and temperature distribution through the thickness. In

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