
ABSTRACTS

*doi:10.22306/asim.v4i4.54**Received: 29 Sep. 2018**Accepted: 07 Oct. 2018***3D LASER SCANNERS: HISTORY AND APPLICATIONS**

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Milan Edl

Faculty of Mechanical Engineering, University of West Bohemia in Pilsen, Univerzitní 22, 306 14 Plzeň, Czech Republic, EU, edl@fst.zcu.cz

Marek Mizerák

Technical University of Košice, Faculty of Mechanical Engineering, Institute of Management, Industrial and Digital engineering, Park Komenského 9, 042 00 Košice, Slovak Republic, EU, marekmizerak@gmail.com

Jozef Trojan

Technical University of Košice, Faculty of Mechanical Engineering, Institute of Management, Industrial and Digital engineering, Park Komenského 9, 042 00 Košice, Slovak Republic, EU, jozef.trojan@tuke.sk (corresponding author)

Keywords: 3D scanner, 3D scanning, laser, reverse engineering

Abstract: A 3D scanner is a device that analyzes a real-world object or environment to collect data on its shape and possibly its appearance (i.e. color). The collected data can then be used to construct digital three-dimensional models. 3D laser scanning developed during the last half of the 20th century in an attempt to accurately recreate the surfaces of various objects and places. The technology is especially helpful in fields of research and design. The first 3D scanning technology was created in the 1960s. The early scanners used lights, cameras and projectors to perform this task. Due to limitations of the equipment it often took a lot of time and effort to scan objects accurately. Collected 3D data is useful for a wide variety of applications. These devices are used extensively by the entertainment industry in the production of movies or virtual reality. Other common applications of this technology include industrial design, orthotics and prosthetics, reverse engineering and prototyping, quality control/inspection and documentation of cultural artifacts.

*doi:10.22306/asim.v4i4.55**Received: 20 Oct. 2018**Accepted: 29 Oct. 2018***EFFECT OF A SURFACE ROUGHNESS ON THE CRACK DRIVING FORCE OF PHYSICALLY SHORT STATIONARY CRACK – NUMERICAL SIMULATION**

(pages 7-10)

Michal Kráčalík

Untere Hauptstraße 48/5, 2424 Zurndorf, Austria, michal.kracalik@gmail.com

Keywords: surface roughness, crack, crack driving force, J-Integral, numerical simulation

Abstract: The surface roughness, residual stresses and microstructure are main parameters that cause surface crack initiation in theoretically porous free materials. Hence, the effect of the surface roughness on the crack driving force is investigated regarding physically short stationary cracks in this paper. FE simulations show that mechanically short stationary cracks have practically zero crack driving force and the orientation of the crack driving force will not support crack growth. The crack driving force follows the material deformation around the crack tip in the opposite direction as is the supposed crack extension.
