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Paper Title: Implementation of Mesh free Technique for Beams on Elastic Foundation

Abstract: The present studies emphasis the analysis of beam for elastic foundation using the Element Free Galerkine Method (EFGM). The attempt was made to provide a simple model for beams on elastic foundation using Mesh Free Technique, called as Element Free Galerkine Method which does not rely on the mesh. The EFGM presented in the study employs generalized Method of Least Square (MLS), which is used to construct shape function based on the set of nodes. The Discrete system equation are derived from the variation form of system equation. A FORTRAN and MATLAB program is developed and numerical example of finite and infinite beams on elastic foundation are presented. Numerical examples are provided to study the convergence and the efficiency of the method.

Keywords: Elastic foundation, Element Free Galerkine Method (EFGM), beams on elastic foundation, Mesh Free Technique and Method of Least Square interpolation.

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2.

Authors: S. Vinay Kumar, K. Sudhakar, L. Sudha Rani

Paper Title: Emerging Technology Li-Fi over Wi-Fi

Abstract: Now a day's Wi-Fi is the most used technology by everyone, but there is an emerging technology Li-Fi, or light fidelity, refers to visible light communication systems using light from light-emitting diodes (LEDs) as a medium to deliver networked, mobile, high-speed communication in a similar manner as Wi-Fi. Li-Fi can be used to off-load data from existing Wi-Fi networks to provide capacity for the greater downlink demand as complementary to the existing wireless or wired network infrastructure. Li-Fi could lead to the Internet of Things, which is everything electronic being connected to the internet, with the LED lights on the electronics being used as internet access points.The Li-Fi market is projected to have a compound annual growth rate of 82% from 2013 to 2018 and to be worth over $6 billion per year by 2018. Visible light communications (VLC) signals work by switching bulbs on and off within nanoseconds, which is too quickly to be noticed by the human eye. Although Li-Fi bulbs would have to be kept on to transmit data, the bulbs could be dimmed to the point that they were not visible to humans and yet still functional. The light waves cannot penetrate walls which makes a much shorter range, though more secure from hacking, relative to Wi-Fi. Direct line of sight isn't necessary for Li-Fi to transmit signal and light reflected off of the walls can achieve 70 Mbps. History: Professor Herald Haas, from the University of Edinburgh in the UK, is widely recognized as the original founder of Li-Fi. He coined the term Li-Fi and is Chair of Mobile Communications at the University of Edinburgh and co-founder of pure LiFi. VLC technology was exhibited in 2012 using Li-Fi. By August 2013, data rates of over 1.6 Gbps were demonstrated over a single color LED. In September 2013, a press release said that Li-Fi, or VLC systems in general, do not require line-of-sight conditions. In October 2013, it was reported Chinese manufacturers were working on Li-Fi development kits.

Keywords: VLC(Visible Light Communication) LED(Light Emitting Diode), Li-Fi(Light Fidelity).

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3.	**Authors:**	**Ram Subbiah, P. Karthick, R. Manjunath, T. Prasanth, R. Ilavarasan, R. Rajavel**	
	Paper Title:	**Experimental Investigation on Hardness of Gas Implanted AISI 316LN Austenitic Stainless Steel**	
	Abstract: The superiority of austenitic stainless steels lies in its good weldability and great resistance to stress corrosion and pitting, because of its higher chromium, molybdenum and nitrogen contents, when compared to general stainless steels. However, some of its applications are limited by very poor wear behavior, Gas nitriding is a very effective treatment for producing wear resistant and hard surface layers on the stainless steels without compromising the corrosion resistance. In this work, AISI 316LN stainless steels samples were gas nitrided at three different timing parameters 8 hrs, 40 hrs and 72hrs under a pressure of 500Pa, in order to verify the influence of temperature on the morphology, wear of the modified surface layers. The gas nitrided samples were analyzed by means of various metallographic tests like Optical microscope, X-Ray diffraction. Wear tests were conducted on a pin on disc machine. For the samples which was nitrided, chromium nitrides were formed on the surface of the layers. **Keywords:** Wear behavior, wear resistance, gas nitriding, metallography. **References:** 1. A.Cohen, A.Rosen (1996), 'The influence of the nitriding process on dry wear resistance of stainless steel', Wear, Vol.108, pp.157-163. 2. A.D.Sarkar (1980), 'Friction and wear test', Ist edition, London Academic press. 3. A.Fossati, F.Borgioli, E.Galvanetto, T.Bacci (2006), 'Glow discharge nitriding of AISI 316L austenitic stainless steel with influence of treatment time', Surface Coatings and Technology, Vol.200, pp.3511-3517. 4. A.Gajek, Z.Wolarek, T.Zakroczymski (2012), 'Behaviour of hydrogen in gas nitrided iron studied by electrochemical permeatin and desorption techniques', Corrosion Science, Vol.58, pp.260-266. 5. A.Krella, A.Czyzniewski (2009), 'Cavitation resistance of Cr-N coatings deposited on austenitic stainless steel at various temperatures', Wear, Vol.266, pp.800-809. 6. A.Ramchandani, J.K.Dennis (1988), 'Nitriding of austenitic stainless steel', Heat treatment of metals, Vol.2, pp.34-38. 7. A.Recco, C.Diona, Lopez, A.Bevilacqua, Felipa De Silva, A.P.Tschiptschin (2007), 'Improvement of the slurry erosion resistance of an austenitic stainless steel with combinations of surface treatments', Surface and Coatings Technology, Vol.202, pp.993-997. 8. A.Reinhard (2003), 'Technology of the metal trade', Wiley Eastern Ltd, New Delhi. 9. ASM Metals Handbook, 2004, Vol.9, 'Metallography and Microstructures'. 10. ASM Metals Handbook, 1992, Vol.18, 'Friction, Lubrication and Wear Technology'.	**7-9**